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ROSEOLA INFANTUM (EXANTHEM SUBITUM)*

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THE problem of fever in infancy is one of the most common and difficult ones confronting the general practitioner and pediatrician. In 1910 Zahorsky[1] described a febrile exanthem occurring in infants and young children, which he termed roseola infantum. This disease was characterized by a relatively asymptomatic febrile course of three to five days, followed by the appearance of a morbilliform eruption. Several years later Veeder[2] helped confirm this syndrome as a specific pathologic entity and suggested the name exanthem subitum. Since that time the disease has attracted wide interest in pediatric circles. However, since patients afflicted with this condition are rarely seriously ill or hospitalized, the average medical student does not see many cases, and consequently roseola has become to many physicians an unfamiliar, little appreciated disease that is frequently misdiagnosed or unrecognized. The name roseola itself has been something of a handicap since it is so easily confused with the terms rubeola (measles) and rubella (German measles). This is all the more surprising since there is increasing evidence that roseola is probably the most common febrile exanthem in children and infants under three years of age.[3]

During the ten-year period 1937–1947, 181 cases were seen at the Children's and Infants' hospitals, Boston. This group is hardly representative of the type of disease ordinarily encountered in practice since the average patient is not ill enough to be referred to a hospital for care. It is in great measure made up of children who have had convulsions, who have been more prostrated than usual, or in whom the duration of the febrile stage has been unusually protracted. In order to make the following descriptive discussion more typical of what may be expected, we have also drawn on their own experience in practice as well as on the various descriptions in the literature.

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FREQUENCY

Many authors[4-7] have commented on the surprising frequency with which they encountered roseola in their own practice once they were on the lookout for the condition. Breese[3] followed 70 newborn babies for a year, with special attention to the number who developed roseola, and observed 11 cases, an incidence of 16 per cent. In view of the age-distribution curve he concludes that approximately 30 per cent of all children develop the disease eventually. In our own experience it has been the most common exanthem encountered under two years of age. As pointed out below, there is reason to suspect that the disease may be almost universal in one form or another under the age of five years.

SEASONAL INCIDENCE

Roseola may occur in any month of the year although it appears to be most prevalent in late spring and mid-autumn.[3, 8] In patients admitted to the Children's Hospital, the peak months were May and October.

SEX AND AGE INCIDENCE

No difference in incidence between the sexes was observed. As is implied in its name, roseola infantum is principally a disease of infants and young children. In our own series the youngest patient seen was four months of age, and the oldest eight years. All those who have described this disease are in complete agreement about the general age-distribution curve (Fig. 1), fully 95 per cent of cases occurring between the ages of six months and three years. Zahorsky[9] refers to a case seen when the patient was two weeks old, and Cutts[10] describes a typical example in a woman of thirty-one years.

PREFEBRILE PRODROMES

These are almost invariably absent, although occasionally the child may have short periods of unimpressive, ill defined irritability and malaise.

Onset

The onset is usually abrupt from the point of view of fever. The child may be slightly irritable

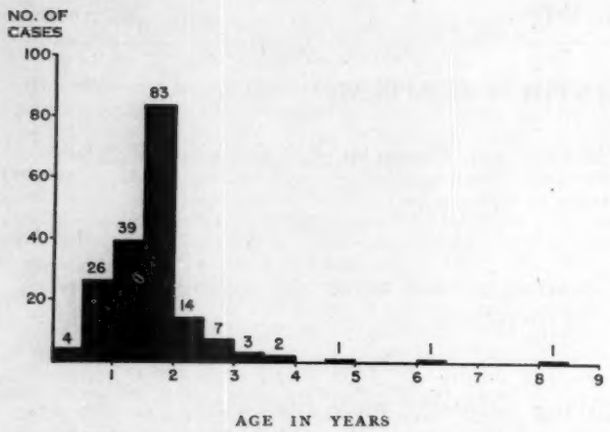

Figure 1. *Age Distribution in Roseola (181 Cases, 1937–1947).*

or listless, but the mother's attention is ordinarily first attracted to him because he feels warm. On taking the temperature she is usually surprised to

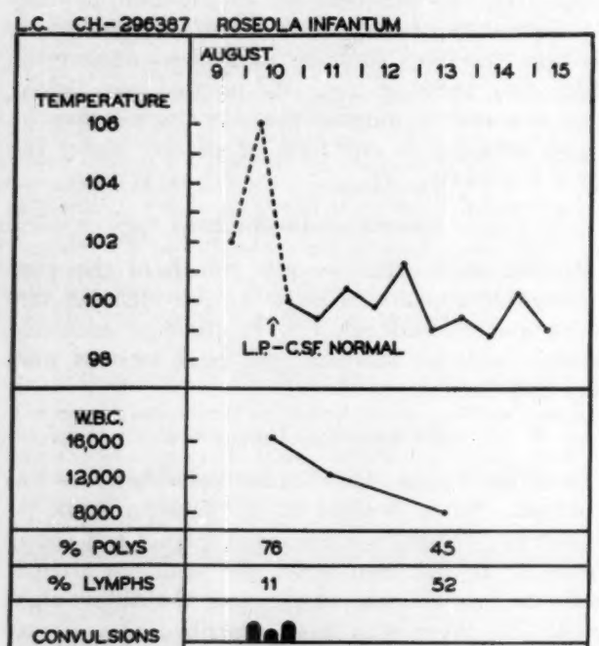

Figure 2. *Clinical Course in Roseola, with Drop in Temperature by Crisis.*

find it elevated to 103 to 105°F. The patient, despite the high fever, is most commonly active and alert, and appears quite well.

Clinical Course

The course of the disease is chiefly characterized by a constant or intermittent, high fever for three to five days. Less often the fever persists for as long as seven to nine days. The temperature is often normal or slightly elevated in the morning, only to rise to 104 to 105°F. by early evening. Generally, the patient appears relatively well, although with the increase in fever he may become restless, irritable, listless or wakeful. Older children may complain of headache and abdominal pain.

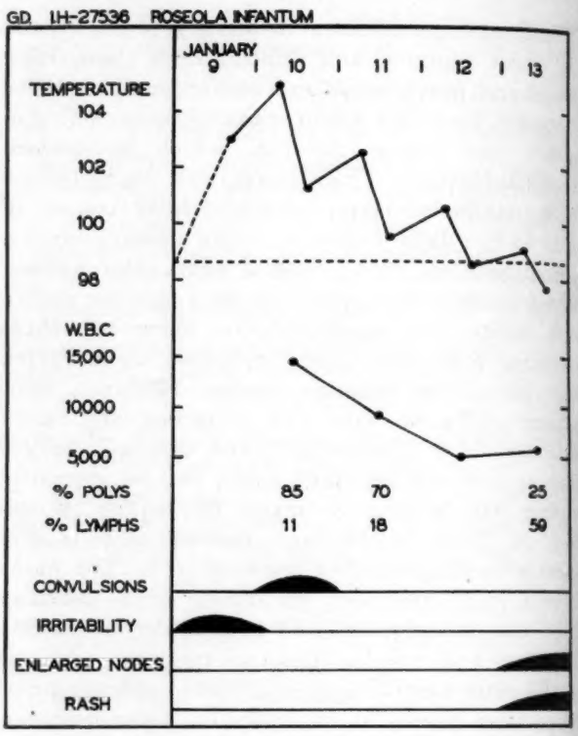

Figure 3. *Clinical Course in Roseola, with Drop in Temperature by Lysis.*

In most cases the only symptoms are those which might be directly ascribed to fever itself irrespective of the cause. Appetite is ordinarily but slightly impaired, and vomiting may occur if large amounts of foods are ingested while the patient is feverish. A fair proportion of our patients had mild coryza or cough, but the interpretation of this was difficult since many cases occurred during the season when upper respiratory infections were prevalent in the community. The temperature usually drops to normal by crisis coincident with or immediately preceding the appearance of the rash. In a smaller number of cases, especially those with intermittent fever, a fall in temperature by lysis may occur over a period of twenty-four to thirty-six hours (Fig. 2 and 3).

Physical Findings

There is usually a paucity of physical findings, and those present are neither diagnostic nor constant.

General Appearance

Almost all patients look and act quite well. They are usually alert, happy and playful. With unusually high fever they may appear listless or irritable, as previously described above. In a very small number of cases they are acutely ill and prostrated, and are occasionally seen in apparent collapse.

Pulse and Respirations

These are usually elevated in proportion to the fever and show no special features.

Pharyngitis

Fully a third of our patients had some mild diffuse catarrhal inflammatory reaction of the pharyngeal mucosa. This was never striking enough to make the examiner satisfied to ascribe the fever to bacterial pharyngitis.

Tonsillitis

A small number of patients with typical roseola have a well defined tonsillar inflammation with occasional exudative follicles. These have developed while the patients were on chemotherapy, and direct cultures even in untreated patients have yielded no significant pathogens. These observations suggest that tonsillar involvement may be due to the roseola virus although there is no reason to doubt that coexistent or secondary bacterial infection does occur.

Enanthem

There is no true or constant enanthem in this disease. However, an increasing number of patients have been found[11] who exhibit what are apparently areas of lymphoid hyperplasia in the region of the uvula and soft palate. In our experience these appear to consist of pin-point elevations on the mucous membrane that are slightly pinker in color than the surrounding mucosa. They are only rarely striking and are easily missed unless the examiner looks specifically for them with adequate illumination. They may appear at any time during the first few days of the disease and usually persist for a few days beyond the appearance of the rash.

Otitis

About a quarter of our patients demonstrated a mild catarrhal otitis media, which was considered to be a reflection of the type of inflammatory pharyngeal reaction just described. This was not ordinarily associated with significant pain and subsided rapidly without specific therapy. Extensive catarrhal otitis or suppurative change developed in relatively few patients, and it was believed that these represented secondary or coexistent bacterial invasion. Cultural studies failed to reveal the constant presence of any particular organism in the small group who required paracentesis or drained spontaneously.

Pulmonary Changes

Physical examination of the lungs has not revealed any significant abnormalities. In a small percentage of the more severely ill patients we have observed nonspecific increase in interstitial pulmonary markings by roentgenographic examination. The significance of this observation is open to question in view of the normal roentgenograms obtained in the majority of patients so examined.

Lymphadenopathy

The importance and incidence of significant lymph-node enlargement has long been debated. Various authors[5, 11, 12] have maintained that suboccipital, posterior cervical and postauricular adenopathy is a frequent and important finding. Others[2, 3, 13, 14] have been unable to confirm this observation. It has also been pointed out[15] that although suboccipital adenopathy is frequent in roseola, the other causes of lymph-node enlargement in this region in childhood are so common that its true significance is open to question. Much of this confusion may be explained by the inadequacy of reviews of hospital records in this respect unless the various observers were especially interested in looking for such changes and specifically recorded their absence as well as presence. In 70 cases in our series in which the patients were examined carefully and repeatedly for adenopathy, some enlargement of suboccipital or posterior cervical lymph nodes was nearly always demonstrable. The degree of enlargement was variable but was considered to be obviously significant in the majority of cases. It was also noted that in many cases the lymph nodes first became palpable on the second or third day of disease and continued to increase in size over the next few days. They rarely reached a size of more than 0.5 to 1.5 cm. The nodes are usually moderately firm, nontender and freely movable. Enlargement may persist for several weeks.

Rash

It has been emphasized that roseola is the only exanthem typically characterized by a pre-eruptive period of high fever, after which the child becomes well when the rash erupts. The rash occurs predominantly on the neck and trunk only, although it may involve the proximal extremities, postaural regions and face. Its appearance ordinarily coincides with the subsidence of fever, or it may follow this by as much as thirty-six to forty-eight hours. As its name implies, the eruption is rose pink. It is characterized chiefly by discrete, small, often irregu-

lar-shaped macules, occasionally maculopapules, measuring 2 or 3 mm. in diameter and fading on pressure. They have no tendency to grouping and are distinctly separated although on rare occasions with an extensive eruption they coalesce. The individual macules are often surrounded by a whitish areola. There is no pruritus or desquamation.[6] The eruption usually lasts for twenty-four to forty-eight hours and then fades completely without residual pigmentation. We have seen a few typical cases in which the rash appeared and faded completely within two to four hours. This raises the obvious possibility of missing a rash that occurs in an area usually covered by clothing and may be relatively fleeting (Fig. 4).

Laboratory Studies

Blood

Although the white-cell count is classically described as being low in this condition, it is worth emphasizing that if one sees the patient in the first twenty-four to thirty-six hours, some slight leukocytosis is the rule. During this period the white-cell count is usually in the range of 12,000 to 15,000, with a slight increase in neutrophils. Occasionally, counts are as high as 20,000 to 22,000 at this time. Ordinarily by the second day and invariably by the third day there is a definite leukopenia accompanied by an absolute neutropenia and a relative lymphocytosis. The white-cell count usually returns to normal within a week, but the lymphocytosis may persist for a longer period. No abnormal cells have been encountered on smear, and no changes in hemoglobin or red cells are demonstrable.

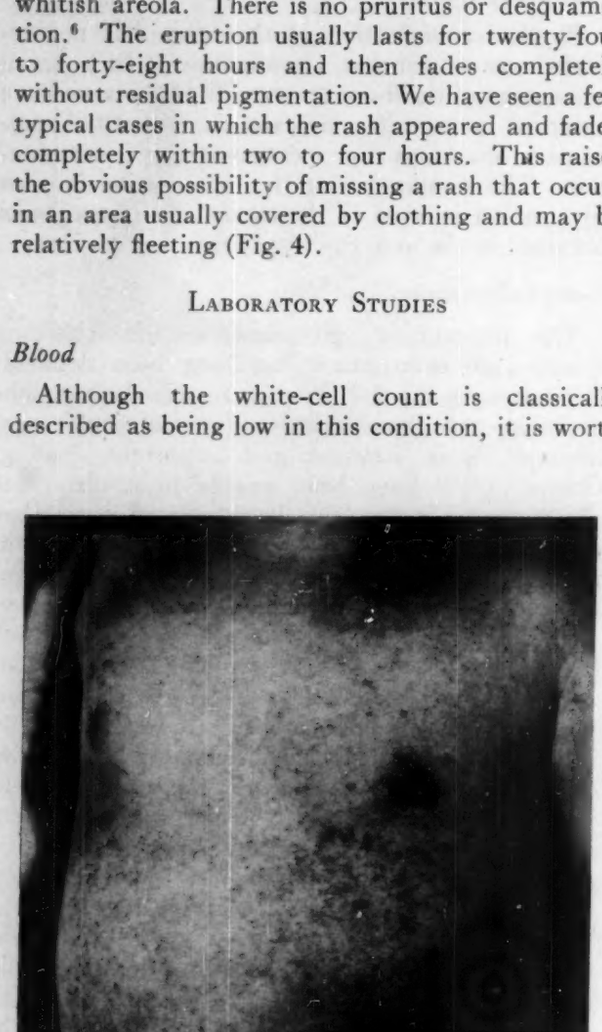

Figure 4. *Post-Febrile Skin Eruption in Roseola. Example of a rather florid eruption.*

Nose and Throat Cultures

Almost all the patients in this series had such cultures with results similar to what one would expect to obtain from the nasopharyngeal flora of any comparable asymptomatic group of well children.

Cerebrospinal Fluid

Because of the high incidence of febrile convulsions in our series, many lumbar punctures were performed. All these spinal fluids were sterile and showed no alterations in sugar, globulin or quantitative protein. In only 1 case was any significant number of cells (25 lymphocytes per cubic millimeter) encountered.

Urine

Routine urine examinations, which were performed in most of the patients studied, showed no variations from the normal.

Virus Studies

Previous attempts[3] to isolate a filterable agent have proved unsuccessful. In 6 of our patients studies[16] were carried out on nasopharyngeal washings and cerebrospinal fluid collected during the febrile pre-eruptive stage, which were inoculated into mice intranasally, intracerebrally and intraperitoneally. Similar material was inoculated into chick embryos in 2 cases. To date, no specific viral agent has been isolated.

Epidemiology

The striking age incidence between six months and three years and the tendency for increased numbers of cases to appear in the spring and fall were noted above.

Incubation Period

In 6 cases there was positive evidence of intimate exposure preceding the appearance of roseola, the incubation period was between ten and fifteen days as reported in two separate epidemics.[7, 17] However, on 3 occasions the disease appeared thirty to ninety days after a known intimate exposure, without any history of subsequent contact. Garvin[18] is stated to have observed cases of the disease forty-one days apart in twins, and Davies[19] has seen cases one hundred and sixty days apart in siblings. The shorter incubation periods unquestionably are the more likely, especially since there is no proof that there was not an intermediate unknown exposure in cases occurring thirty to ninety days after contact. However, these long incubation periods are of considerable interest.

Communicability

Roseola is a disease of rather poorly defined communicability. There is rarely any spread to sib-

lings,[20] who are almost always outside the susceptible age group in the average family. All those engaged in pediatric practice are familiar with the minor waves of increased frequency of the disease on occasion. There almost never is any well defined epidemic spread, although 2 such cases are reported from foundling homes.[7, 19] We have not seen the disease spread on the general wards of the Infants' Hospital, where these patients are cared for with the same gown precautions used on all infants.

Immunity

In roseola as in all other exanthems, well established second cases of infection are reported,[21, 22] although these are unusual. For all practical purposes one attack affords permanent immunity. Despite the claim of some early authors that roseola was an anomalous form of German measles[12] or measles, it has been well established that there is no cross immunity and that roseola stands as a specific entity.

Etiologic Agent

Although no specific etiologic agent has ever been demonstrated, the incubation period, clinical course, blood changes, failure to respond to chemotherapy and immunologic concepts all lend credence to the idea that roseola is produced by a viral agent.

Prognosis

As indicated above the prognosis in this disease is supposed to be excellent almost by definition. However, we have recently encountered several infants who became desperately ill at the height of the disease despite an early sense of well being. One ten-month-old infant, who fulfilled all the diagnostic criteria including subsequent typical rash, became critically ill on the second day of disease. He went into a shock-like state of collapse, with rapid, thready pulse, dyspnea, cyanosis and a cold, mottled skin. This did not appear to be due to hyperpyrexia. For a period of a few hours it appeared unlikely that he would survive, although he eventually responded to symptomatic shock therapy.

Complications

The commonest complication encountered in our series was convulsions. The actual incidence in hospital and consultation practice is quite high, and in some years convulsions occurred in as many as a third of the patients. This incidence is obviously false and artificial, for a convulsion was often the chief reason for hospitalizing the patient. It must be borne in mind that the vast majority of patients with roseola are never sufficiently ill to warrant hospital care or study. The incidence of convulsions has been variably reported as 0.7 per cent,[15] 6 per cent[23] and 50 per cent,[24] depending on the source of material, with the lowest incidence in cases reviewed in general practice and the highest in hospital practice. The seizures are usually generalized, tonic or clonic in character, and of short duration, without sequelae. Presumably, they are febrile in origin. We have only observed alterations of cerebrospinal fluid in this group in 1 case. Lumbar puncture was performed on almost all the convulsive patients in our series. The occurrence of seizures was most common in patients in whom the onset was very abrupt, with sudden, unusually high fever.

Several patients appeared unusually drowsy after one or a series of convulsions. A relatively small number of patients were stuporous for one to twenty-four hours. An example of striking encephalitis in a twelve-year-old boy has been reported.[25]

Two or our patients had postconvulsive hemiplegias, which cleared in two to five days respectively. A case in which such a hemiplegia persisted for ten weeks has been reported.[26] Such complications are almost certainly due to the preceding convulsions rather than to roseola per se.

Differential Diagnosis

The commonest error in diagnosis is to call the acute illness acute pharyngitis, otitis media or pneumonia and to ply the patient with unnecessary chemotherapeutic agents. The eruption is often misdiagnosed as a toxic rash, prickly heat or eczema. An important error in diagnosis is that of drug rash, since it may affect the patient's care in a subsequent illness in which there is real need for chemotherapy. Often the attending physician prescribes one of the sulfonamides or penicillin in the absence of a specific diagnosis because of the unusually high fever. When the rash appears a diagnosis of drug rash is made, and the patient is erroneously labeled as sensitive to the chemotherapeutic agent. Drug rashes are more apt to be confluent and more widespread and less apt to be confined chiefly to the trunk as in roseola. If the medication is continued and the rash fades, the diagnosis of sensitivity may be eliminated.

The following exanthems are to be differentiated from roseola:

Chicken pox. The vesicular character of this rash is unique enough so that erroneous diagnosis is unlikely.

Scarlet fever. This usually has a shorter invasion period, more constant although less elevated temperature, more angina, tongue changes and febrile state of acute illness when the rash appears. The appearance of the rash is, of course, quite different, and neutrophilic leukocytosis is the rule.

Measles. The presence of cough, coryza, Koplik spots, conjunctivitis and the intensification of fever and malaise with the appearance of the eruption should serve to differentiate this disease from roseola.

German measles. The rash and lymphadenopathy here more closely resemble roseola than in any other condition. The rash of German measles is apt to be more widespread and may coalesce. Its frequent epidemic incidence is most helpful in diagnosis. The absence of a high temperature and the early appearance of the rash during the febrile stage should serve to differentiate this condition from roseola.

Infectious mononucleosis. Approximately 5 to 10 per cent of patients with infectious mononucleosis develop a rubella-like rash or scarlatiniform eruption in the early febrile stage of the disease. The longer course, more striking and more generalized lymphadenopathy, splenomegaly and laboratory findings of many atypical lymphocytes on smear with the development of a positive heterophil-antibody agglutination should distinguish this condition.

Treatment

The treatment of roseola is purely symptomatic. The patient should be kept at rest and given fluids freely. Aspirin is helpful in keeping the patient more comfortable by virtue of its antipyretic effect. In patients with a sudden high temperature, phenobarbital may well be employed to raise the convulsive threshold and prevent seizures from occurring. The sulfonamides, penicillin and streptomycin are of no value.

Discussion

Roseola infantum, a well defined, common exanthem of infancy and early childhood, has been recognized in approximately 15 to 30 per cent of children carefully followed by those familiar with the disease. The known factor of its incidence raises a number of interesting speculations concerning its epidemiology. The comparative infrequency of cases before the age of six months suggests transplacental passive immunization of the infant by its mother such as occurs in measles. On the other hand, the rarity of cases beyond the age of three years is unlike the situation in measles and is particularly remarkable in view of the demonstrated susceptibility of occasional older patients. It raises the possibility that almost all susceptible persons may be exposed and may contract the disease in the first three years of life. On the other hand, the infrequency of epidemics, suggesting that the degree of contagiousness is probably not high, is difficult to reconcile with such a concept.

This situation could be explained by widespread dissemination of the infective agent, perhaps by numerous adult carriers, universal susceptibility after disappearance of the antibodies received from the mother and the existence of atypical modified forms of the disease. In view of the manner of spread of the epidemics reported by Barenberg[17] and Cushing,[7] it was concluded that the disease was transmitted by adult carriers. If true, this would explain the sporadic occurrence of roseola and the usual absence of a known exposure.

The occurrence of asymptomatic, inapparent or very mild forms of infection has been recognized with other virus diseases such as poliomyelitis, infectious hepatitis and mumps. That this may occur in cases of roseola is quite possible. Moreover, it is logical to assume that, as in measles, there may be a period between four and eight months of age when immunity passively acquired from the mother gradually recedes. During this period the antibody titer may well be low enough to allow the infant to contract a modified form of the disease. All pediatricians have seen many infants and young children who acted as though they had roseola but in whom the rash was never demonstrated. Again, the rash may be so fleeting as to defy detection unless it is constantly watched for day and night. The idea that an atypical, mild, modified form of the disease exists is held by various authors.[3, 11, 17, 27] If adult carrier states are common, there may well be numerous cases of unrecognized modified infection occurring around the age of six months. Indeed, if these hypotheses are correct, it may not be too far fetched to assume an almost universal incidence of both recognizable and unrecognized modified disease in infancy and early childhood to explain the unusual occurrence of a common virus infection that is rarely seen before the age of six months or after the age of three years.

Although roseola is certainly a benign disease in the vast majority of cases, we have observed a small but definite number of patients with a more serious clinical picture. It hardly seems possible that a disease of infancy with such a marked febrile reaction should invariably be benign. As the disease is now defined and interpreted, it is dismissed from differential diagnostic consideration if the patient succumbs, and in such a case its recognition is impossible since its distinguishing feature, the rash, only appears at the time of clinical recovery. In view of some of our experiences, we have speculated that some cases of so-called "sudden death" in infancy may eventually be proved to be unusually severe, unrecognized forms of roseola. The chief pathological findings described by Farber[28] in many of his reported cases of sudden death were interstitial pneumonia and cerebral edema — lesions of a type that might be expected in a viral infection.

Summary

1. Roseola infantum (exanthem subitum) is a relatively asymptomatic febrile disease, with a paucity of physical findings, of three to five days' duration followed by a morbilliform eruption.

2. It is the commonest exanthem of infancy. The hypothesis is offered that it may be an almost universal infection under the age of five years.

3. It is most prevalent in spring and autumn.

4. There is no difference in incidence between the sexes.

5. Fully 95 per cent of cases occur between the ages of six months and three years.

6. The clinical course, physical findings and hematologic changes are described.

7. The incubation period is defined and the communicability and epidemiology discussed. The possibilities of a large carrier population and a modified form of the disease are raised.

8. The evidence favors a viral etiologic agent.

9. The prognosis is for the most part excellent. The possibility of the existence of more serious unrecognized and occasionally fatal variants of the usual clinical picture is raised.

10. The recognized complications include convulsions, encephalitis and rarely hemiplegia.

11. The disease can be differentiated from the other common exanthems.

12. The treatment is purely symptomatic.

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THE MAJOR UROLOGIC CONSIDERATIONS IN PARAPLEGIA*

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THE health of the upper urinary tract in paraplegia is, except for one hazard, dependent upon the health and function of the bladder. That exception is a tendency toward the formation of renal stones during prolonged recumbency or inactivity. But this tendency is itself greatly exaggerated by infection and stasis, both of which are sequelae of vesical dysfunction. From the hour of injury, therefore, there can be no temporizing with the care of the bladder if the dangerous consequences of the neurogenic disorder are to be averted or diminished.

After any severe spinal-cord injury, there is often a period of spinal shock. This is marked by the suppression of all reflex activity below the level of the injury. The bladder, sharing in this common suppression, is unable to evacuate its contents and requires artificial drainage. It has generally been considered that the bladder is atonic during this period. Nesbit and Lapides[1] have suggested that the atony is not primary, but occurs only if, as a result of inadequate drainage, the bladder wall has become overdistended and decompensated. It may be that in such cases tonus is maintained through the agency of the intrinsic ganglions of the vesical wall. Munro,[2-4] on the other hand, states that cystograms taken on many patients shortly after injury regularly reveal complete atony. One thing is quite apparent, — that in many cases, if not always, a return of tonus becomes evident before the detrusor is yet capable of the strong, sustained contractions necessary to bring about voiding. This return may be delayed or totally impeded by overdistention, the avoidance of which, therefore, becomes a chief aim of early treatment. For it must be apparent that a decompensated bladder wall may in time undergo changes that will irreversibly alter its functional capacity.

A concept thus emerges that has not been emphasized in the literature on this subject — that the alterations in function following interference

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with the nerve supply of the bladder must be interpreted in terms of an organ that has also been subjected to other drastic structural alterations. There may come a time when, even if the innervation might be miraculously restored, the functional result would still be poor. The avoidance and treatment of such alterations, whether they come early or late, then becomes a major factor in the urologic care of these patients.

During the war, there was some justification for the performance of early cystostomies in forward areas. In civilian conditions, there is none. Catheter drainage with tidal irrigation is easily the method of choice. Permanent suprapubic cystostomy has fewer and fewer advocates as time passes, and as attention focuses more sharply upon true rehabilitory treatment rather than mere expediency.

With the patient's emergence from the phase of spinal shock, the bladder almost invariably resumes its reflex activity. Exceptions occur when the spinal reflex centers have themselves been destroyed, leaving an autonomous bladder, or when the bladder wall has so changed as to be incapable of normal response to the stimuli directed to it. Such changes may be the result of prolonged or excessive distention, contraction such as frequently follows prolonged suprapubic drainage, or infection with consequent fibrosis. The reflexly acting bladder is that which is commonly called "automatic," an unfortunate term, since it does not accurately describe the functional status. Correctly designated, an autonomous bladder is one that has been completely divorced from the central nervous system by destruction of the spinal reflex center that mediates micturition, or by interruption of the fibers concerned in the reflex arc. It has a fairly characteristic pattern of behavior — hypertonicity with frequent ineffectual contractions. It is always leaking but never empty. The neural function is mediated through the ganglions within the vesical wall, aided by the intrinsic response of smooth muscle to the stimulus of stretch. This type of bladder is characteristically associated with destructive lesions of the sacral segments and the cauda equina.

The re-establishment of satisfactory function of the reflex bladder postulates: urethral voiding; a bladder of sufficient capacity to act as a reservoir for convenient intervals and with reasonable consistency; a bladder that is capable of emptying itself completely or almost completely; and a sufficient degree of control to avoid involuntary escape of urine. Satisfactory urethral voiding involves the closure of all fistulas whether of deliberate or accidental origin. The latter are usually the result of infection, most often periurethral; they generally emerge at the penoscrotal junction and practically always require surgical repair. Occasionally they are seen in association with urethral diverticula. A previously established suprapubic sinus that does not heal promptly during urethral-catheter drainage should have a definitive surgical closure. Pate and Bunts[5] have described two cases of fatal peritonitis in patients in whom the fistula had closed at the abdominal wall but had not become completely obliterated. Such occurrences illustrate the danger inherent in spontaneous closure of a long-standing fistula.

The bladder capacity need not be excessive; 8-10 ounces (240-300 cc.) is quite satisfactory, and 7 ounces (210 cc.) is probably safer. The greater inconvenience of slightly more frequent emptying is amply compensated for by avoidance of the hazards of overdistention. The only known stimulus to detrusor contraction, and thus to the emptying of the bladder, is stretch. This is a dynamic rather than a static phenomenon. It is dependent upon increasing intravesical pressure. Normally, the contractions thus elicited can be inhibited by impulses from higher centers. This inhibitory mechanism is the chief agent of voluntary control of micturition. Another is the voluntary contraction of the external sphincter, which is always accompanied by reflex inhibition of the detrusor. In the paraplegic patient, both these voluntary control mechanisms are commonly lost, and the bladder has returned to a state of uninhibited reflex function similar to that of infancy. The inhibitory impulses, however, are perhaps not the only manifestations of control from higher levels impinging upon the reflex center for micturition. The control of tonus, as well as certain co-ordinating and integrating factors are also, according to some observers, transmitted along descending fibers.[6-9] Possibly as a result of their interruption, the reflex bladder may be hypertonic to a greater or lesser degree, and its detrusor, although it contracts powerfully, does so with diminished efficiency.[10] In order to establish regularity and consistency of function, the familiar phenomenon of the conditioned reflex is invoked, through the use of tidal drainage and habit training, as first recommended by Munro,[2-4, 11, 12] and now widely adopted. The hygienic value of tidal drainage constitutes a further advantage in its use.

The occasional paradox of a hypertonic bladder that cannot empty itself completely is readily resolved. Lack of co-ordination and integration of detrusor activity has already been mentioned as a factor in dysfunction. This is most prominent in the autonomous bladder. The internal orifice, which is in fact the edge of the detrusor, shares in the hypertrophy due to frequent ineffectual contractions. This may be of sufficient degree to produce obstruction at the vesical neck. Superimposed infection or fibrosis, or both, may cause rigidity, contributing further to dysfunction. The opening of the internal orifice is a reciprocal concomitant of detrusor contraction resulting from the mechanical arrangement of the muscle fibers. It is probably

incorrect, certainly incomplete, to ascribe micturitional dysfunction to so-called neurogenic sphincteric disturbance. When persistent residual urine exists in association with bladder-neck obstruction, transurethral resection is indicated.[13, 14] Even when such obstruction cannot be demonstrated cystoscopically, but when in spite of a good detrusor there is residual urine or retention of urine, resection is justified. Spasm of the external sphincter has been described[15] and should be excluded before surgery is undertaken, but the importance of this phenomenon as an obstacle to voiding has not yet been conclusively demonstrated.

When a satisfactory and reasonably consistent capacity has been achieved and when the bladder empties itself completely, there remains the question of control. The problem is to train the patient to void at his own convenience, anticipating the involuntary reflex emptying of the bladder. Obviously, the patient must be able, first, to initiate micturition and, second, to know when to do so. Fortunately, a majority of paraplegic patients retain some degree of sensation associated with vesical filling. This may manifest itself in various ways. Some experience a suprapubic or generalized abdominal pain or a burning referred to the penile urethra. Others exhibit autonomic reactions such as sweating, chills or headache. A number, however, have no sensory recognition of a full bladder. Among this group, reliance must be placed on timing, with due attention to the regulation of fluid intake. An emptying contraction of the detrusor is initiated when the stimulus of stretch reaches an intensity sufficient to send an impulse along the afferent limb of the reflex arc. A useful means of bringing this to pass is by straining. This produces an increased intra-abdominal pressure, which is in turn transmitted to the bladder; there, the increased intravesical pressure produces the stretch stimulus, which sets off the voiding reflex. If the abdominal muscles are inadequate, a suitable belt may help. Tapping the abdominal wall, scratching the thigh, pinching the glans and other so-called "trigger" mechanisms are frequently used, but they are less physiologic and, generally, less dependable methods of stimulating bladder contraction. Direct manual pressure against the abdominal wall may reinforce the detrusor in the emptying of the bladder.

Before leaving this brief discussion of bladder function, one should note that other mechanisms have been described. Most recently, Muellner and Fleischner[16] have demonstrated activity of voluntary muscles of the pelvic floor during the beginning of micturition, which they interpret as the initiating factor. It seems more probable, however, that such activity is of an auxiliary character.

Along with the care and training of the bladder, there are a number of collateral urologic problems affecting paraplegic patients. Renal calculi, of less frequent occurrence than a few years ago, are occasionally encountered in patients returning after months or years at home. Pyonephrosis is a not uncommon complication. Treatment is not peculiar to paraplegia except, perhaps, for a greater than usual preoccupation with the conservation of renal tissue. Vesical calculi are treated by cystolithola-paxy without particular difficulty. Their occurrence or recurrence can often be averted by the establishment of good drainage, or by the use of suitable irrigating solutions when there is an indwelling catheter.

Chronic pyelonephritis is common. Bacteriuria is almost universal, but fortunately often exists without accompanying clinical evidence of infection, and with little or no pyuria. The organisms generally cultivated are the gram-negative bacilli, which are resistant to penicillin and respond but indifferently to the sulfonamides and streptomycin. For treatment over a long period, acidulation is useful when it can be achieved, with occasional courses of mandelic acid.

When renal infection becomes clinically apparent, appropriate investigation will reveal coexisting mechanical factors or structural changes in many cases. Notable among these is vesicoureteral reflux with hydroureter and hydronephrosis. The present view of the etiology of this condition is that it results not from neurogenic disturbance but from actual alteration of the ureterovesical orifice, arising from chronic infection and distortion of the bladder wall.[17] In the effort to correct this, two types of surgical approach have been employed. In one, the ureter is reimplanted into the bladder; in the other, a complete lysis of the intravesical portion of the ureter is attempted. Too few cases have been treated so far to warrant any report on results.

Although hypertonicity of some degree is more common, hypotonic or even atonic bladders are encountered in paraplegic patients from time to time. On the basis of the assumption that this might be due to the physical state of the bladder wall itself, rather than the neurogenic factor, the size of the bladder was reduced, in 1 patient, by wide excision of the anterior wall. This man now has a normal capacity, can initiate micturition and has no residual urine. A second patient, subjected to a similar operation, has not yet reached the stage of trying to void, but already shows striking cystometric evidence of restored detrusor function.

Wherever there is extensive use of indwelling catheters, there will be a certain incidence of epididymitis, although meticulous technics may hold it down. Probably the best single prophylactic measure is the use of a small size catheter, preferably No. 16 Fr., and certainly not larger than No. 18 Fr. Prophylactic vasectomy is not desirable among

young men, many of whom retain sexual potency. After recurrent attacks of epididymitis, however, it is probable that the genital passages are effectively blocked, and that further exacerbation can best be prevented by epididymectomy. The chief danger of these recurring attacks is secondary involvement of the testicle and its ultimate destruction. One such case, which will be reported in detail at a later date, resulted in a fulminating, rapidly fatal septicemia. Vesicoureteral reflux, already mentioned, which is far more dangerous to health and life, seems to be slightly more frequent among patients who have had suprapubic cystostomies than among those who have not. Obviously, none of our present methods approaches perfection, but improving results justify the hope that continued effort and study may yet lead to further progress.

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MUMPS COMPLICATED BY A PRECEDING MYELITIS*

Report of a Fatal Case

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When McKaig and Woltman,[1] of the Mayo Clinic, published their review of neurologic complications of mumps in 1934, they reported a case of transverse myelitis in a sixteen-year-old girl who was left with a complete flaccid atrophic paralysis below the second thoracic segment. Her spinal fluid, incidentally, showed no increase in cells in two tests during her illness. The authors found a similar case of mumps myelitis in the literature in a girl one year older. Wesselhoeft[2] cites these 2 cases and adds a case of myelitis with recovery from the French literature. Bobeff and Petroff,[3] of Sofia University, Bulgaria, report mumps myelitis with residua in a six-year-old girl and mention 5 other cases from the literature, remarking that it is significant that there is no mention of this complication in the seventeen-volume work of Bumke and Foerster[4] (1935–36). In the same year (1941) Donohue[5] reviewed the pathology of mumps encephalitis. Among the 10 autopsies analyzed, besides his own case, there were 2 cases of myelitis: in a man of thirty-eight with parotitis and orchitis, no lesions in the central nervous system were found; in the other, a woman of thirty-four, death occurred more than a year after quadriplegia had followed mumps. The anterior-horn cells of the cervical and lumbar enlargements showed marked atrophy and degeneration and the corresponding peripheral nerves demonstrated degeneration of their axis cylinders and disappearance of myelin. Donohue doubted, however, that this neuropathological picture had any etiologic relation to mumps. Van Rooyen and Rhodes[6] refer to seven reports of mumps myelitis. Two cases with recovery are described by Lightwood[7] and Church.[8] When duplications are omitted, there are references to 12 recorded cases of myelitis, with 2 autopsies. It thus appears that myelitis is perhaps the rarest of the neurologic

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involvements in mumps. It should be added, though, that undoubtedly many an unusual case occurs without being reported in the literature. In the Syracuse City Hospital, for example, a seven-year-old boy was admitted in 1938 with transverse myelitis following mumps. The case reported below is the second in almost nineteen years, among nearly 12,000 admissions for all causes.*

Case Report

H. G. M., a 37-year-old physician, was admitted to City Hospital on June 19, 1947.

The day before, when making a call about noon, he found himself unable to shake down the thermometer readily. About 3 hours later he noticed in climbing stairs that the right leg seemed weak. In the evening while at a dinner he twice lost his balance and jokingly remarked that people might think he had been drinking. While making a call later that evening, he found it difficult to steer the car. He slept very little that night, being apprehensive that he was coming down with Landry's paralysis. Before morning he managed to go downstairs to his office to arrange as many of his affairs as possible because of his premonition. On the same morning he felt much weaker in both arms and legs, fell readily and had extreme difficulty in getting up, but could stand once he got on his feet. His wife took him to the hospital, and he managed to get out of the car and stand beside it, but when he attempted to go forward he fell and had to be lifted into a wheel chair.

He had always been in excellent health. In childhood he had had chicken pox, diphtheria, measles, rubella, scarlet fever and whooping cough but not mumps. A sister had had mumps, but he was away at the time, he thought. He had served as a medical officer with mountain troops in Italy during the war; he had had an attack of acute appendicitis there and had been operated upon uneventfully. For the past several weeks he had been working hard and felt tired out. There had recently been a number of cases of mumps in his area, and he had seen 2 cases with meningoencephalitis, 1 of which he had referred to the City Hospital 1 week before.

Physical examination showed an obviously anxious and apprehensive man, with no abnormal findings aside from the neurologic signs. There was no nuchal rigidity and no difficulty in swallowing. Respiratory movements appeared normal. There was generalized weakness in both upper and lower extremities. The biceps and triceps reflexes were diminished bilaterally. The right thigh was weaker than the left, but the reflexes were present. The abdominal reflexes were weakly present.

The temperature was 99.6°F. by rectum, the pulse 64, and the respirations 20. The blood pressure was 125/75.

On an epidemiologic basis, the myelitis was considered due to mumps but without parotitis, and this diagnosis was offered the patient as affording a much better prognosis than Landry's paralysis.

A more complete neurologic examination was made later in the day and paralysis and paresis of most of the skeletal musculature were found. Superficial and deep sensation was not involved. There was no sign of meningeal irritation. The flexors of the neck were markedly weak. The cranial nerves were normal except for loss of the pharyngeal reflex.

Lumbar puncture yielded a clear spinal fluid without increased pressure containing 15 lymphocytes per cubic millimeter. The protein was 51, the sugar 79, and the chloride 750 mg. per 100 cc. Spinal-fluid Wassermann, gum-mastic and colloidal-gold tests were negative.

Examination of the blood disclosed a red-cell count of 5,020,000 with a hemoglobin of 15.5 gm., and a white-cell count of 10,700, with 71 per cent neutrophils (10 per cent nonfilamented), 22 per cent lymphocytes, 6 per cent mononuclears and 1 per cent basophils. The urine was yellowish, clear and alkaline, with a specific gravity of 1.002. Tests for albumin and sugar were negative, and the sediment was normal. Specimens of serum and spinal fluid were frozen and sent to the virus laboratory, Division of Laboratories and Research, New York State Department of Health.

During the next 2 days, the deep reflexes disappeared entirely, and the muscle weakness took the form of a complete quadriplegia. At no time was there a Babinski sign. The patient appeared more uncomfortable, restless and apprehensive. On June 21 bilateral parotid swelling appeared, somewhat greater on the right side. Next day he complained of pain in the legs but was able to move his feet a little and his shoulders very slightly. On the 5th day, he seemed more cheerful and somewhat encouraged. Hot packs to the muscles seemed to make him more comfortable. On this day the left parotid swelling was more prominent than the right.

On the next day he was more restless and apprehensive, having had a poor night. He was expectorating mucus but felt that he had more than he could bring up, and suction had to be performed frequently. The soft palate was normally movable, and there was no nasal twang and no fluid accumulation in the throat. He ate soft food and drank fluids without difficulty. In the night, however, he seemed unable to raise mucus, and his color was slightly dusky. Respiratory amplitude was unaffected. Oxygen was started by nasal catheter, and later that night the trachea was suctioned.

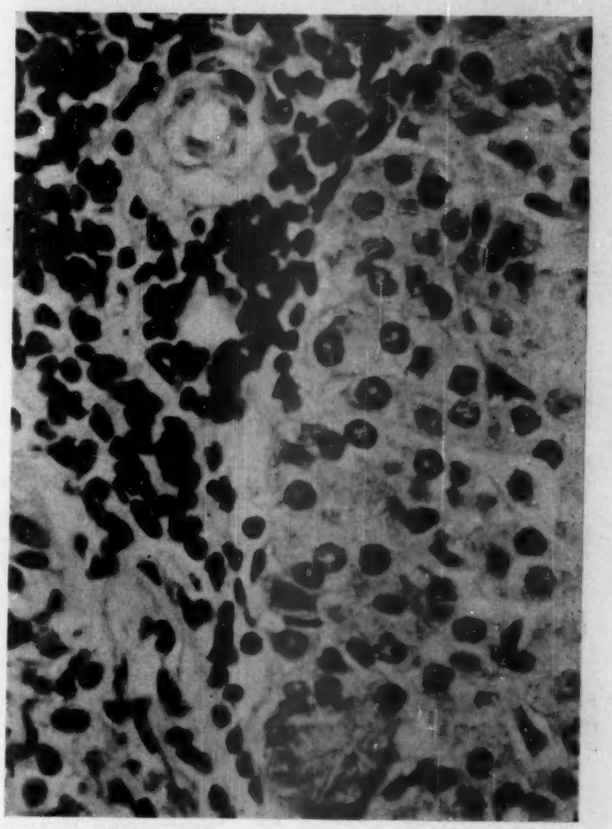

Figure 1. *Section from the Parotid Gland, Showing Focal Lymphocytic Infiltration, Preservation of General Acinar Morphology and Pyknosis of Some Nuclei (x 800).*

From this time on, the patient's condition and color continued poor, and he grew steadily worse. The temperature, which had previously remained normal, began to rise slightly. He was placed in an oxygen tent. Fluids were given intravenously, and also plasma and blood. Penicillin was started. Continual suctioning was required. On the evening of June 25 tracheotomy was performed, but the patient's color did not improve appreciably. He became confused and dis-

*Involvement of the central nervous system in mumps is a relatively common complication, depending on the criteria employed for the diagnosis (whether on the basis of clinical findings, spinal-fluid pleocytosis or chemical changes), and is usually quite benign, so that fatal cases are extremely rare.

oriented. He could not sleep. The mucus became purulent. Death ensued on June 27.

Post-mortem examination, performed within 1 hour of death, revealed slight cyanosis of the ear lobes and lips. In the midline of the neck was a recent tracheotomy wound. There was swelling bilaterally in the region of the parotid gland, but the only abnormal gross finding was some edema of the gland itself and the surrounding tissue. Both lungs were somewhat heavier than normal, and both were deep purple and nonaerated, except for the upper portions of the upper lobes, which appeared normal. Most of the major

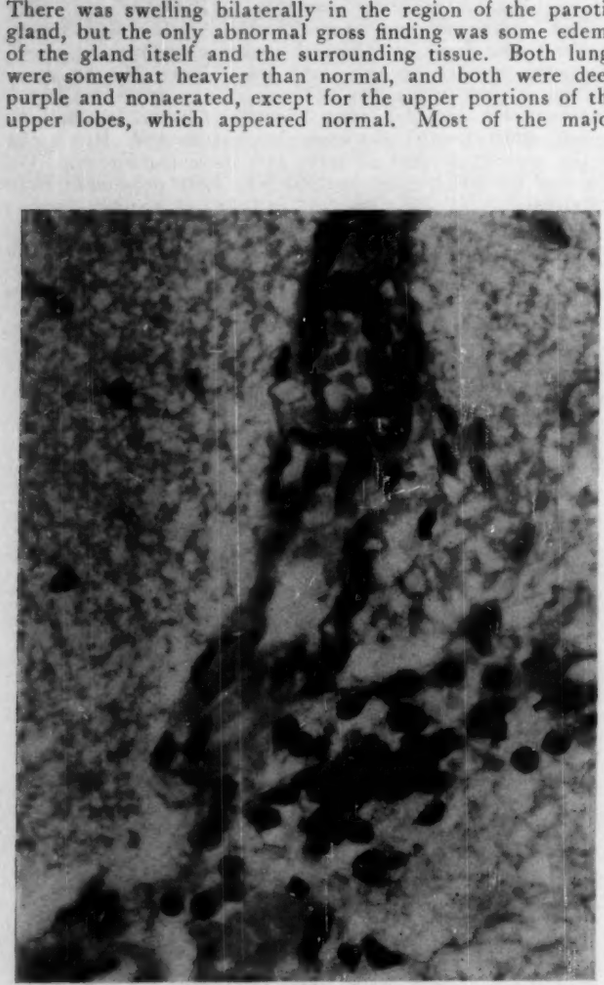

FIGURE 2. *Section from the Cerebral Cortex, Showing Longitudinal Section of a Small Vessel around Which There Is Some Demyelinization and Lymphocytic Infiltration (x 800).*

and minor bronchi were filled with a yellow, tenacious, elastic material, which was only moderately adherent to the bronchial walls. The bronchial mucosa showed some increase in vascularity. The pancreas and testes did not appear abnormal. The brain weighed 1330 gm. and was marked by unusually prominent blood vessels. This increased vascularity also characterized the spinal cord. There was no gross evidence of exudate, although the spinal fluid was slightly cloudy. Portions of the brain and lungs were placed in 50 per cent glycerol for shipment to the state laboratory.

Microscopical examination demonstrated several areas of lymphocytic infiltration in the parotid gland. Some of the cells of the acini contained pyknotic nuclei, suggesting early necrosis, but for the most part the structure was well preserved. Numerous darkly stained areas were seen within the cytoplasm of the cells; these were tentatively identified as inclusion bodies, although their exact nature is not known (Fig. 1).

The changes in the brain and spinal cord, although nonspecific, were beyond question. Besides the diffuse dilatation of vessels, there was a mild perivascular demyelinization and some proliferation of glial cells. Many vessels showed endothelial proliferation. The alterations were found primarily in the cortex and were indicative of encephalitis. The leptomeninges revealed some round-cell infiltration, insufficient to suggest an acute meningitis. Within the spinal cord there were early degenerative changes in the anterior-horn cells and marked perineuronal edema (Fig. 2 and 3).

The pathological changes in the lungs consisted of an acute bronchitis and bronchiolitis, the lumens containing an exudate of leukocytes and the walls an infiltration of lymphocytes and mononuclear cells. The mucous membranes were partially necrotic. The alveoli were collapsed, but there was very little exudate within them. The cellular elements within the alveoli were predominantly lymphocytes and mononuclears, and there were also some of these within the alveolar walls (Fig. 4). Cultures of the material within the bronchi yielded a few colonies of *Staphylococcus aureus*. Suctioned sputum obtained before death also yielded a few colonies of *Staph. aureus*, and the direct smear showed many pus cells and an occasional gram-positive coccus.

Specimens of these tissues were also submitted to the head of the Department of Neurology at the University of Minnesota Medical School, who gave the following opinion:

> The sections show minimal alterations. There are a few petechiae and some vascular congestion. The white matter demonstrates a mild diffuse gliosis and an occasional thin zone of perivascular myelin degeneration. The ganglion cells appear normal; however, a few within the brain stem show a few regressive changes. There is a mild endothelial proliferation in some of the cortical vessels. These changes are nonspecific but are suggestive of a mild encephalitic process.[9]

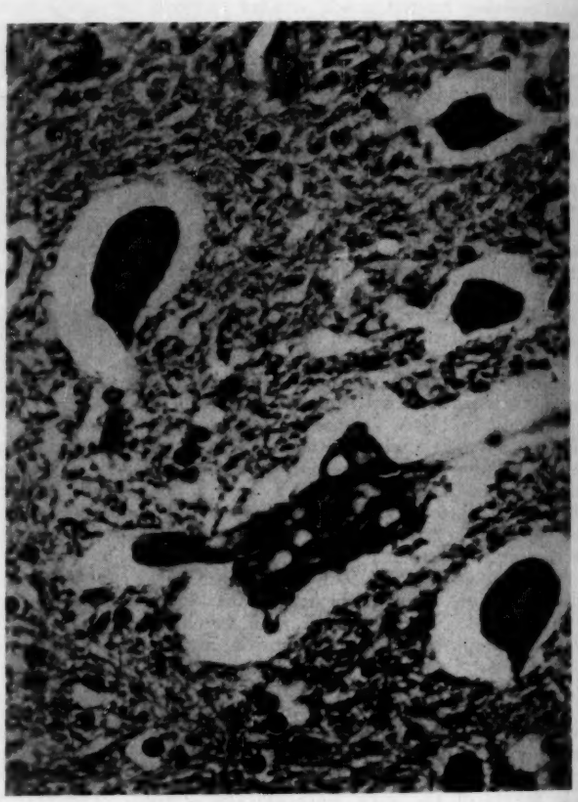

FIGURE 3. *Section from the Anterior Horn of the Cervical Cord, Illustrating Marked Perineuronal Edema (x 480).*

Specimens of brain and lung in 50 per cent glycerol, received at the New York State laboratory on July 1, were used for inoculation of guinea pigs and mice in order to rule out the neurotropic viruses of the encephalitis group and

also the virus of lymphocytic choriomeningitis. Isolation of mumps virus was also attempted by inoculation of embryonated hen's eggs via the amniotic and yolk-sac routes. None of the animals showed any signs of illness, nor could the virus be isolated from the embryonated hen's eggs. Blind passages were done in both instances. The fourth-passage amniotic fluid from amniotically inoculated eggs was used as antigen in a complement fixation with known positive mumps serum. Normal amniotic fluid and fluid containing mumps virus were used as negative and positive controls respectively. This test, which is quite sensitive, failed to reveal mumps virus.

The serum specimen taken on June 19 was tested with mumps antigen in the complement-fixation test, and an insignificant degree of fixation found. The titer was approximately 16, whereas that of a negative control serum was 4 and a moderately high-titered serum was 128 in the same test.[10]

Discussion

As has been indicated, very little autopsy material from cases of mumps has been adequately studied, and what changes have been described are not sufficiently specific for an etiologic diagnosis. So far as mumps myelitis is concerned, which more correctly is probably encephalomyelitis, the case reported above is probably the only one in which much detail is available, and even in this case the clinical history supplied the primary proof. Nevertheless, the histopathology of the parotid was similar to that described by Johnson and Goodpasture[11] in their experiments on monkeys. The changes in the brain and spinal cord were much like those previously described in the review by Donohue.[5] The pathological changes in the lungs were not specific, but taken together give a picture like that described by Golden[12] in a review of 21 cases of atypical pneumonia. He noted the similar histopathological changes in pneumonia of influenza-virus etiology, of measles and of so-called atypical pneumonia, and grouped them as an acute interstitial pneumonitis. Incidentally, although Donohue's patient died of pulmonary involvement also, the report simply states "there were patchy and confluent areas of typical bronchopneumonia." In the literature on mumps there is no description of the disease in the lung such as that seen in our case.

The viral studies in this case apparently supply only negative results. It must be kept in mind, however, that certain viruses were excluded, and that failure to isolate mumps virus from the postmortem tissues can have no bearing on the pathological diagnosis. In demyelinizing meningoencephalitis one would not expect to isolate virus ordinarily. There was an interval of four days prior to inoculation, and this definitely reduces the chances of isolating mumps virus, which is labile. At the time the case was being studied, mumps virus could be readily isolated from saliva in the first two days of parotitis by inoculation of monkeys. In the meantime the virus has been isolated in eggs by Leymaster and Ward[13] from the saliva of patients as late as six days after the onset of the disease.

In general, however, diagnostic dependence is placed upon the demonstration of complement-fixing antibodies. Although the blood on admission in the case reported above showed insignificant fixation, the patient's death precluded a subsequent sample, and it is regrettable that another blood specimen was not withdrawn at the time of death, for Enders[14] has found that even in a week the antibodies may show a significant rise. But, in connection with complement fixation, new developments have come in the meantime. The

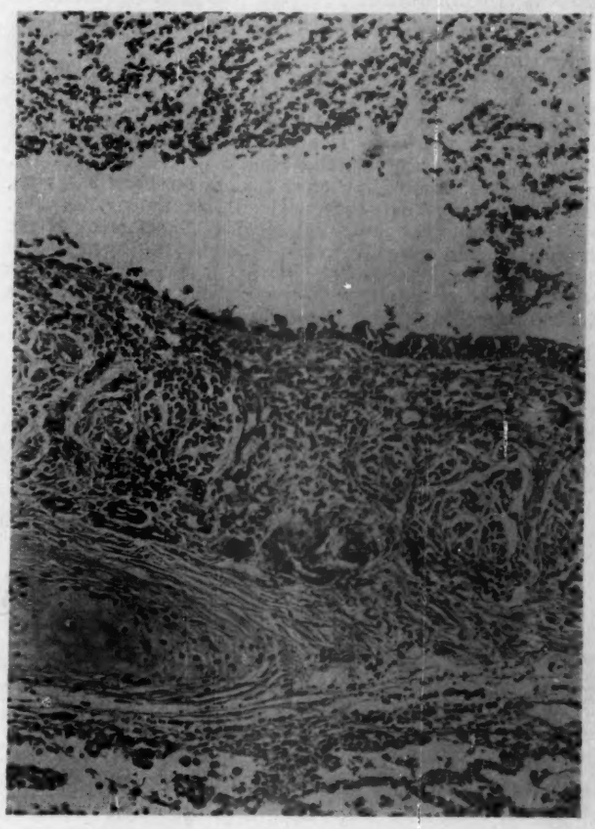

Figure 4. *Section from the Lung, Showing Polymorphonuclear Exudate within the Bronchial Lumen, Sloughing of Bronchial Epithelium and Infiltration of Submucosa (x 115).*

The alveoli are relatively free of exudate, although scattered lymphocytes, mononuclears and plasma cells may be seen. The interstitial tissue also shows a mild infiltration by these cells.

adaptation of mumps virus to the chick embryo has revealed at least two serologically distinct complement-fixation antigens: the virus-bound or V antigen and the soluble or S antigen. The use of both antigens has permitted the early diagnosis of manifestations of mumps in the absence of parotitis, such as meningoencephalitis, since the finding of high levels of anti-S and of low or no titers of anti-V is considered diagnostically significant for the first few days of illness.[15]

There are only hypotheses concerning the cause of the central-nervous-system involvement of mumps

and other common communicable diseases, and these are reviewed by Donohue[5] and others.[2, 6, 16]

Summary

A case of mumps myelitis with post-mortem studies, as well as viral studies, is presented, and the literature is briefly reviewed. This is probably the first case so fully reported. Symptoms and signs of myelitis preceded parotid swelling by three days. The pulmonary involvement, which was the cause of death, was consistent with viral disease, but whether it was caused by the primary virus is problematic. Newer diagnostic technics that were unavailable at the time the case was studied are discussed.

I am indebted to Dr. Max Newer, who had charge of the case, for permission to report it; to Drs. Alderman, Budgen, Rubenstein and Joseph Delmonico for consultation and assistance in handling various aspects of the case; to Dr. Irving Gordon, of the Division of Laboratories and Research, New York State Department of Health, for the viral studies; to Dr. Roemmelt and the Pathological Department of the Syracuse University College of Medicine for the autopsy and study of the sections; and to Dr. A. B. Baker, head of the Department of Neurology of the University of Minnesota Medical School for review of the sections.

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MEDICAL TREATMENT OF ACUTE PULMONARY ABSCESS*

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ANCON, CANAL ZONE

IN TREATING patients with suppurative lung abscess the practitioner is often confused by the conflicting views expressed in current medical literature. Should such cases be treated surgically from the onset, with immediate drainage or resection,[1] or should they be followed with watchful expectancy because some will heal spontaneously?[2]

It is my opinion that neither view is correct, that time is precious and that intensive and strenuous medical measures should be instituted immediately. If these procedures do not meet with rapid success, surgical intervention should not be delayed. When lung abscesses were diagnosed early, medical measures have led to recovery in as high as 80 to 90 per cent of cases.[3, 4] When such methods do not result in cure they usually make the patient a better risk for surgical intervention. It is the purpose of this paper to outline in detail a proposed method of intensive medical therapy for acute lung abscess and to report 3 consecutive cases in which it has been successfully employed. Two of these were putrid lung abscesses, and the third appeared to be of the nonputrid post-pneumonic variety.

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Plan of Medical Treatment

Early diagnosis is most important. Lung abscess should be considered as a possible diagnosis in all "chronic" or "unresolved" pneumonias. Roentgenographic examination usually shows the characteristic area of pulmonary evacuation. A fluid level is generally present. However, about 5 per cent are shut off from bronchial drainage,[5] do not manifest a fluid level and are difficult to differentiate from pneumonic infiltration. Lateral and oblique views are often needed for correct localization of the disease and to demonstrate lesions lying behind the heart. Identification of organisms in the sputum is important. However, multiple organisms are usually present, and in adults Smith[6] has found anaerobic fusospirochetal organisms in 90 per cent of lung abscesses and believes these to be the principal etiologic agent. Abscesses secondary to pulmonary neoplasms, multiple embolic abscesses, primary bronchiectasis, tuberculosis and mycotic infections must be considered in the differential diagnosis and must be ruled out by appropriate studies.

Bronchoscopic examination is advised in all cases to establish the presence or absence of a foreign

body or pulmonary neoplasm. Also, this may aid in better drainage and aeration of the diseased area. During bronchoscopy it may be feasible to aspirate the abscess cavity and to instill a suitable chemotherapeutic agent. Repeated bronchoscopic aspiration with instillation of penicillin directly into the abscess cavity as a form of definitive therapy has been widely used abroad but seems to be viewed with varying degrees of favor in the United States.[3, 4, 7-9]

Adequate drainage of the abscess cavity is essential for successful medical treatment. One accomplishes postural drainage by inverting the patient with his head to the floor and with the body tilted so that the affected lung is uppermost. This should be done at least four times daily. Personal attention to determine the optimal position of the patient will frequently ensure good drainage when unsatisfactory results have been achieved previously. As a further aid to pulmonary drainage patients are taught to sleep without a pillow and with the foot of the bed elevated 20 to 30° during the course of therapy.

Chemotherapy

Multiple organisms are usually present, and abundant gram-negative organisms have been noted in the sputum after the administration of penicillin alone.[10] For these reasons parenteral administration of both penicillin (50,000 to 100,000 units every three hours) and sulfadiazine or a mixture of sulfadiazine and sulfamerazine sufficient to maintain a blood level of approximately 12 mg. per 100 cc. is recommended. Local chemotherapy as penicillin aerosol, 40,000 units in 1 cc. of isotonic sodium chloride, is administered with a vaponephrin nebulizer. A satisfactory aerosol spray is obtained by an oxygen flow of 5 to 7 liters per minute. A Y tube that diverts the air when the patient is not inhaling is used. No mechanism for condensing the expired air has been considered necessary. Aerosol therapy is carried out at four-hour intervals, preferably after postural drainage. In case organisms sensitive to streptomycin are isolated, streptomycin should be given in addition to penicillin both by aerosol and by the parenteral route. It has been suggested that the efficacy of aerosol can be enhanced by the addition of detergents such as agents of the quarternary ammonium series as zephiran chloride.[11] Such agents were not used in the cases reported below.

Case Reports

Case 1. A 35-year-old man was admitted to the respiratory ward of the hospital on February 22, 1947, with chills and fever that had followed recovery from a drunken stupor. The lung fields were clear, and he was treated symptomatically as a case of acute respiratory infection. At the end of 8 days the temperature was spiking daily to 104°F., and rales and consolidation were first noted in the right-upper-lung field. A roentgenogram of the chest revealed a wedge-shaped area of consolidation radiating out from the right hilus. Questionable radiolucency was noted in the central portion of this consolidation. Sputum cultures showed pneumococcus and hemolytic and green-producing streptococci. The patient was given 50,000 units of penicillin by intramuscular injection at 3-hour intervals. Because of the right apical consolidation numerous sputum specimens were examined for acid-fast bacilli; all were negative. The patient continued to run a febrile course, and 8 days after institution of penicillin therapy a roentgenogram revealed an extension of the pneumonic process, with a large central area of translucency with a questionable fluid level (Fig. 1). He received penicillin parenterally for 20 days, with no improvement. On March 22 oral administration of sulfadiazine, penicillin aerosol and postural drainage were started. Within 3 days he became afebrile, and a film of the chest showed diminished surrounding reaction in the right-lateral-lung field and a definite abscess cavity was no longer demonstrated. There was progressive clearing of the lung fields, and only a small linear scar remained. The sputum diminished and became negligible. The sedimentation rate dropped from 50 mm. to 4 mm. per hour (Wintrobe method). Therapy was continued for 6 weeks. The patient was followed for an additional 2 months without return of pulmonary symptoms or evidence of lung abscess on repeated roentgenographic examinations.

Case 2. A 42-year-old man was admitted to the hospital on April 13, 1947, with paroxysmal coughing and hemoptysis of 1 month's duration. The patient produced 500 cc. of pink, bloody sputum in 24 hours. His symptoms had begun 4 days after extraction of all his teeth under pentothal anesthesia. He had noted progressive dyspnea, pain in the right side of the chest and a weight loss of 17 lb. He was afebrile on admission. A roentgenogram of the chest revealed an abscess cavity in the right-lower-lung field. This cavity measured 4 by 5 cm. in diameter and showed a fluid level (Fig. 2). Bronchoscopic examination showed only inflammation in the right-lower-lobe bronchus. He was placed on the previously outlined course of therapy on April 16, and made a dramatic symptomatic and radiographic recovery. The daily sputum decreased from 500 cc. to 20 cc. within 2 days. Therapy was continued for a total of 24 days. Films of the chest taken 8 days after the institution of therapy showed disappearance of the previously seen abscess cavity. During the 24 days of therapy there was a rise in the hematocrit from 34 to 41 per cent. On completion of therapy the patient was discharged from the hospital without symptoms. He was followed for a period of 18 months, during which three roentgenographic examinations failed to reveal evidence of lung abscess and he had no pulmonary complaints.

Case 3. A 26-year-old woman had had an infected molar extracted under local anesthesia on August 25, 1948. On August 30 fever and pleuritic pain in the left-lower-lung field developed. She was hospitalized 1 day later, when the temperature was 101°F., the pulse 100, and the respirations 30. X-ray study of the chest revealed an area of increased density in the left lower lobe, with slight pleural thickening. The changes were considered indicative of pneumonitis. The sputum was negative for hemolytic streptococci or pneumococci. The white-cell count was 12,000, with 85 per cent neutrophils. The patient was given 50,000 units of penicillin at 3-hour intervals and became afebrile and asymptomatic within 2 days. X-ray examination of the chest on September 7 showed slight clearing, and she was discharged for follow-up study as an out-patient. Five days later she returned to the hospital with a recurrence of chills and fever. A film of the chest revealed an oval type of pneumonitis in the area previously involved that was rather sharply circumscribed on the lateral film. This was again considered to be pneumonitis although shut-off abscess or interlobar fluid was considered as a possible diagnosis. The temperature was 102.4°F., the pulse 110, and the respirations 26. Examination of the blood disclosed a white-cell count of 14,600, with 87 per cent neutrophils. Intramuscular administration of penicillin 50,000 units at 3-hour intervals, was started, with no improvement. Examinations of the sputum were negative for pneumococci, tuberculosis and hemolytic streptococci. The patient became progressively worse, the temperature spiking as high as 104.4° F., although she was receiving sulfadiazine in addition to penicillin. On September 17 she was placed in the head-down

position, with percussion of the involved lung area. This enabled her to expectorate about 30 cc. of foul sputum, after which x-ray films of the chest revealed a lung abscess in the left lower lobe, which showed a fluid level and measured 4 cm. in diameter. On the following day she was examined by bronchoscopy, with essentially negative findings; 100,000 units of penicillin and 0.5 gm. of streptomycin in 5 cc. of isotonic sodium chloride were instilled into the left-lower-lobe bronchus. After this procedure she was started on a course of postural drainage and penicillin aerosol in addition to the systemic penicillin and sulfadiazine she was already receiving. She became afebrile within 2 days, and the abscess cavity showed progressive diminution in size. On October 1 it could no longer be demonstrated. Therapy was continued until October 9. After discharge from the hospital she was symptom free, and films of the chest 1 and 5 months later were clear.

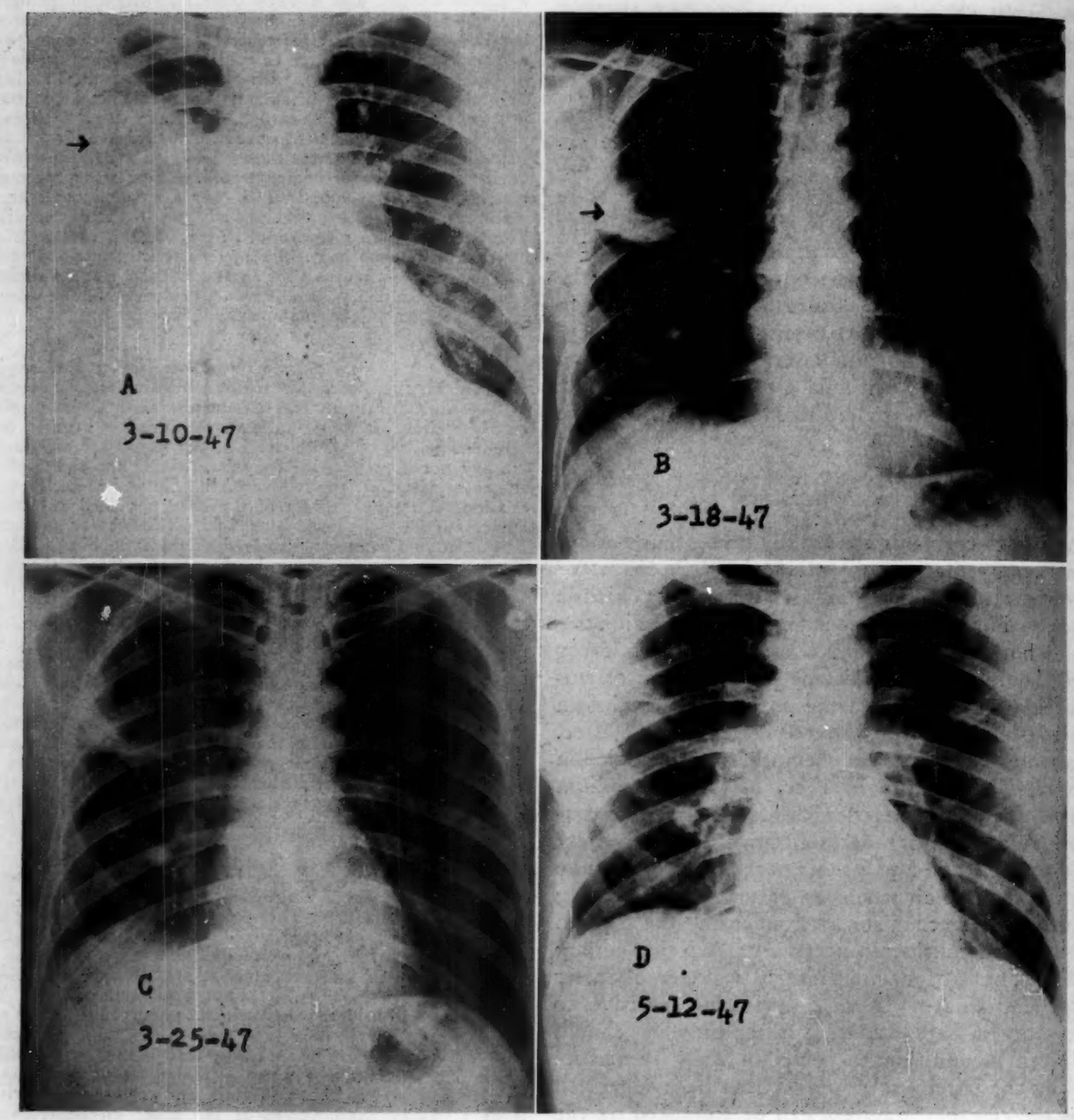

FIGURE 1. *Case 1.*

A = extensive pneumonia of the right lung, with an area of rarefaction suggestive of pulmonary abscess. B = overexposed film taken eight days later, demonstrating a pulmonary abscess with a fluid level. C = abscess cavity is no longer apparent, and there is beginning linear scar formation. D = follow-up film one and a half months later, showing residual linear scar. (All roentgenograms were reproduced by Madigan General Hospital Photographic Laboratory, Tacoma, Washington.)

DISCUSSION

Since some authors have reported cure rates as high as 90 per cent[3, 4] from the medical treatment of acute pulmonary abscess, it is no longer thought

justifiable to consider all pulmonary abscesses as surgical problems from the onset. Intensive, comprehensive medical therapy of acute lung abscess will effect a cure in the majority of cases. This should include not only systemic penicillin but also systemic refractive to parenteral penicillin.[10, 12] Some surgeons have had the experience of seeing patients with lung abscesses recover while they were receiving penicillin aerosol in preparation for surgical treatment.[10, 11] Two of the 3 cases reported above

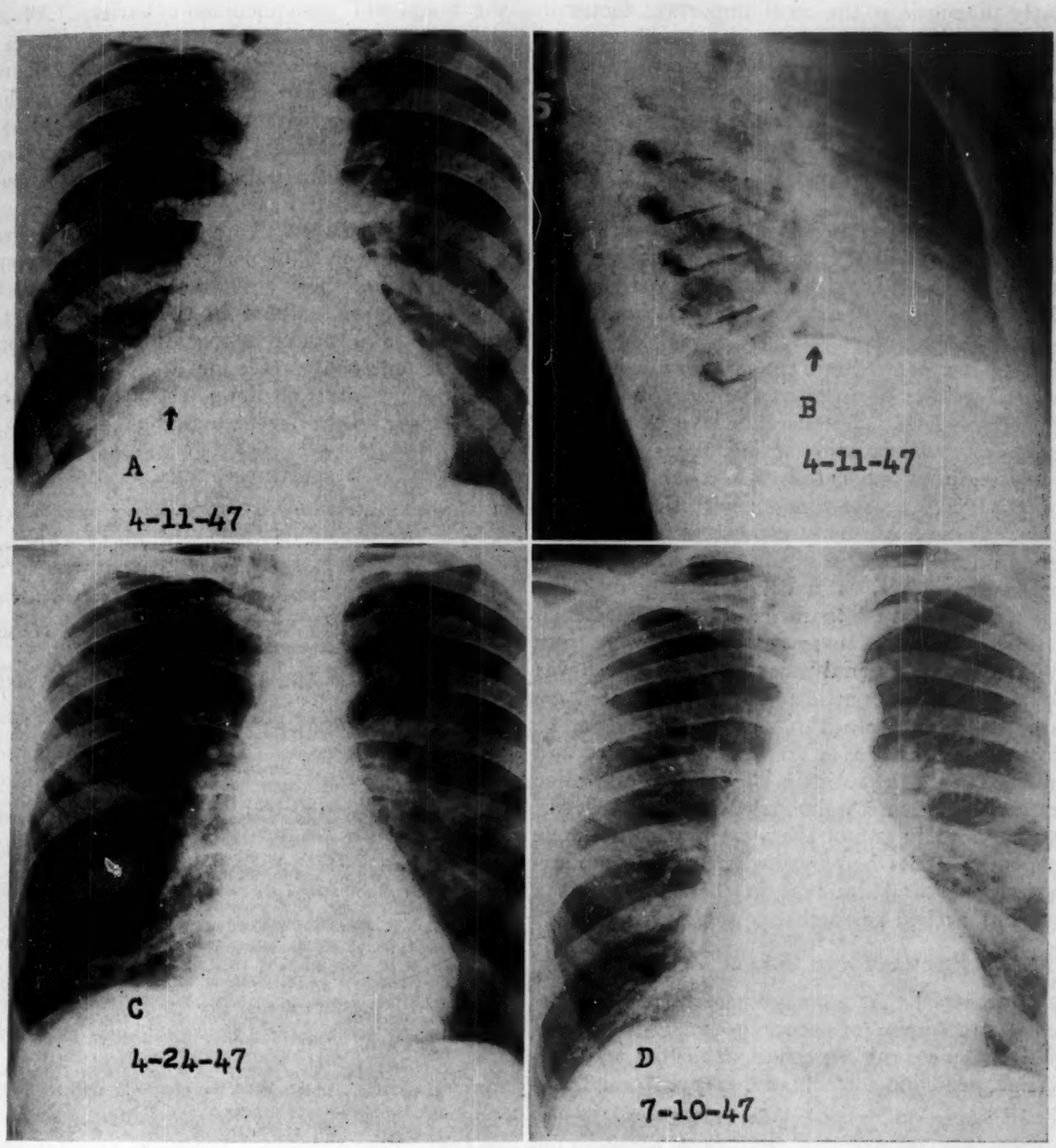

FIGURE 2. *Case 2.*

A=chest film, demonstrating a large abscess cavity with a fluid level. B=right lateral view of the abscess cavity, showing the fluid level. C=film taken thirteen days later, when the abscess cavity is no longer evident. D=follow-up film taken two and a half months later — there is no evidence of pulmonary abscess.

sulfadiazine, penicillin aerosol, vigorous and frequent postural drainage, bronchoscopic examination and the prompt use of streptomycin or other chemotherapeutic agents indicated. After penicillin aerosol therapy other authors have frequently noted recovery from pulmonary abscess in cases failed to show improvement on parenteral administration of penicillin but healed almost immediately when a comprehensive course of therapy, including penicillin aerosol, was instituted. A shut-off abscess in which drainage through the bronchus cannot be accomplished is an indication for prompt sur-

gical intervention. It is my belief that cases with satisfactory drainage that fail to show regression within four weeks should be treated surgically if repeated bacteriologic studies do not show organisms that require the use of additional chemotherapeutic agents.

Early diagnosis is the most important factor in determining the number of cases that will be cured by medical means. Few cures have resulted from medical treatment in chronic lung abscesses.[6] These cases should ordinarily be treated by resection of the involved lung.[13, 14] However, preoperative therapy similar to the treatment outlined for acute lung abscesses will result in improved preoperative condition of these patients and in an occasional medical cure. I agree with Scannell's[15] suggestion that the therapy of lung abscess may largely resolve itself into a decision between medical treatment and extirpation.

Rubin[16] has pointed out the most frequent cause of lung abscess to be an operative procedure on the oropharynx. Most observers believe putrid pulmonary abscess formation is due to aspiration of infected material, which lodges in a sublobar bronchus, producing a severe acute necrotizing inflammation. These are usually associated with chronic gingival infections.[5] One of my cases followed multiple tooth extractions under general anesthesia, and another followed tooth extraction under local anesthesia. In both cases extractions were performed because of perialveolar abscess. There was no evidence that a particle of tooth had been aspirated in either case.

Postural drainage is a strenuous procedure and should be used with caution in the presence of cardiac disease or threatened pulmonary edema. However, it is undoubtedly one of the most important single therapeutic agents employed. The only complication from postural drainage in these cases was a small conjunctival hemorrhage.

Summary and Conclusions

It is proposed that a comprehensive plan for the medical treatment of acute pulmonary abscess should include both systemic penicillin and sulfadiazine, penicillin aerosol, adequate postural drainage, bronchoscopic examination and the prompt use of streptomycin or other chemotherapeutic agents indicated by bacteriologic study.

Three consecutive cases of acute pulmonary abscess were successfully treated in this manner. Two were putrid lung abscesses, and the third was of the nonputrid post-pneumonic variety. All cases showed complete disappearance of abscess cavity by roentgenographic examination within fourteen days of the institution of the therapy outlined. Two of the 3 patients had previously failed to improve under treatment for six and twenty days, respectively, with parenteral administration of penicillin.

It is believed that all suppurative lung abscesses, except for those shut off from bronchial communication, should receive such initial treatment with the expectation of cure in the majority of acute abscesses and better preparation of the chronic ones for pulmonary resection.

The view that all lung abscesses are surgical problems from the onset should be modified.

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MEDICAL PROGRESS

PSYCHIATRY

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IT IS gratifying to psychiatrists to see the importance of their specialty more and more clearly recognized and understood by medicine generally and by the public. The situation beginning with and since the war suggests that psychiatry may be approaching its heyday. The hope should be that its structure is or will be on foundations so sound that as time goes on it will not suffer through periods of questionable repute.

Even at present, it may be considered, a little uneasily, if there are signs of excessive enthusiasm or fervor in some directions. In speaking of the ominously revolutionary trends of today's social forces, Chisholm[1] says, "Without the extensive help of psychologists and psychiatrists it is quite probable that mankind will not long survive the fearful changes which are taking place." Perhaps this statement was calculatedly exhortative for the psychologists and psychiatrists, but if it was seriously meant for just what it says it seems wise for those addressed to decline modestly the honor of saving the race.

There is no evidence, psychiatric or sociologic, that psychiatry has or can have the power and influence to shape man's course in the universe. Gregg,[2] to whom psychiatrists seem to listen with respect, writes, "Psychiatry can wave no magic wand and so obliterate powerful social forces and the conflicts that accompany enormously complicated social transitions, even if it has been fondly hoped or vaingloriously imputed to have such powers." Gregg's whole paper is an excellent, sympathetic evaluation of the place, possibilities and limitations of psychiatry. In an article written some time back, cautioning against unwarranted expectations from psychiatric treatment, the following remarks were made:

> Reflecting on the frailties of human nature, one may well wonder whether religion or science presents the better road toward a better race. Psychiatry should play its part best by holding to a steady course in which it does not permit itself acclaim beyond its actual accomplishments.[3]

A more far-reaching development in psychiatry than any possible tendency toward assuming omnipotent capacities, a development that should be regarded more critically and objectively than it is in some quarters, is the body of Freudian psychoanalytic concepts. Today, psychoanalytic terms are so tossed about that the layman is likely to assume that, in using them, he is referring to established truths, and even some psychiatrists are timid about challenging their authenticity, thinking that they as professional men may not be so well informed as they should be.

The valid accomplishments of psychoanalysis should not be discredited, but psychiatry and people generally should not accept theoretic formulations and part-truths as scientific facts or whole truth. Menninger[4] has written, "Actually, sex is the basic and all-pervasive motivation in life, and it must be understood for a healthy mentality." In reality, it has yet to be proved, in regard to unmeasurable motivation, that sex is any more basic than the forces or drives of self-preservation and self-development. To pronounce that sex alone is basic is to interpret human behavior in such manner as to substantiate a theory that one may want to believe but that is not supported by facts as we know them.

One may ask what difference it really makes whether or not sex, even in the broad, inclusive sense meant by psychoanalysis, is considered the basic motivation. The importance of this is that the so-called interpretive or dynamic evolvement in psychiatry has, by a number of causes, gained, assumed and maintains to an influential degree an authoritative position to which it is not entitled on scientific grounds. If psychoanalysis designates itself as a church, as a system of ideas and beliefs, that helps people to live more contentedly, more constructively, there is no quarrel between it and science, unless science itself has become headstrong.

To delineate further the authoritative position, Menninger[5] writes, "The misdirection of the aggressive drive is the basic cause of all maladjustment," and "The psychiatrist is convinced that emotional maturity can be reached only through a childhood experience in a situation that provides affection, good example, and security," and "Psychiatrists uniformly agree that the great majority of psychological cripples receive the injuries that predispose them to their crippled state in childhood, very often even in infancy."

Psychiatrists, if they have been well educated, and if they have not forgotten their education and if they retain the scientific attitude, do not agree with such sweeping statements. They know there is little about which they can be sure, and they do

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not overlook or discard the importance of constitution and heredity in human behavior.

In a critical essay on what he calls "autistic trends in psychiatric thinking," Freyhan[6] nicely analyses the dangers of overemphasis on the dynamic interpretation of psychiatric or personality disorders:

> Positivistic ideologies have. . .produced a tendency either to underestimate or even to ignore the necessity of appraising constitutional and hereditary aspects of psychiatry. It is hardly an exaggeration to state that these factors are actually taboo in general psychiatric discussions. The often heard argument that investigations in these fields have failed to yield tangible results is not in accord with facts and must be regarded as another symptom of autistic rationalization.

Farther along, he states "Bartemeier stressed the importance which Freud attributed to the hereditary predisposition and warned that one-sided preoccupation with environmental factors is not at all in accordance with Freud's total theory of psychopathogenesis." Freyhan's paper is worth reading in its entirety by anyone who may wonder if he has become a little unbalanced on the subject of psychiatric etiology.

It may be recalled that Freud[7] himself stated his position as follows:

> The expectation that we shall be able to cure all neurotic symptoms is, I suspect, derived from the lay belief that neuroses are entirely superfluous things which have no right whatever to exist. As a matter of fact they are serious, constitutionally determined affections, which are seldom restricted to a few outbreaks, but make themselves felt as a rule over long periods of life, or even throughout its entire extent. Our analytic experience that we can influence them to a far-reaching degree, if we can get hold of the historical precipitating causes and the incidental accessory factors, has made us neglect the constitutional factor in our therapeutic practice. And we are in fact powerless to deal with it; but in our theory we ought always to bear it in mind. In any case, the complete inaccessibility of the psychoses to analytic therapy should, in view of their close relationship to the neuroses, moderate our optimism in regard to the latter. The therapeutic efficiency of psychoanalysis is limited by a whole series of important factors, which can scarcely be dealt with at all.

Psychoanalysis may demur, saying that, even in post-Freudian development, it makes no assertion that it effects cures in whatever problems it undertakes, that it is essentially an investigative discipline and as such is interested in disclosing the fundamental structure of psychopathology. Undoubtedly the interest in psychopathology is genuine, but there is an inclination to make too wide application of theoretic psychologic or psychobiologic nuclei, sets, complexes or so-called instinctive drives. One example is the maintaining that in a large percentage of cases of alcoholism an etiologic factor is a latent or conscious homosexual conflict. Another is the assumption that the same conflict is etiologically present in the paranoid states. One paper, suggesting that healthy, scientific doubt and objectivity are not swamped, is the report of a study, by Klein and Horowitz,[8] of 80 patients who had diagnoses of paranoid state or schizophrenia, paranoid type. These writers conclude:

> The paranoid mechanism cannot be explained solely by homosexual conflict despite the convincing evidence of its pertinence in certain cases. It is so obvious in the cases in which it occurs, that the limits of its application are all the more surprising. . .if the relationship of homosexuality to the paranoid mechanism is assumed to be invariable, other important considerations will be neglected.

The actual existence in human nature of an inherent, instinctive drive of destructiveness or aggressiveness, expressed by hostility toward various parts of the environment, is too much taken for granted by some psychiatrists. Freud[9] wrote, "The bit of truth behind all this — one so eagerly denied— is that men are not gentle, friendly creatures wishing for love, who simply defend themselves if they are attacked, but that a powerful measure of desire for aggression has to be reckoned as part of their instinctual endowment." Horney[10] quotes Freud as saying, "Hatred is at the bottom of all the relations of affection and love between human beings."

Not all investigators agree that an instinct of aggression is an essential part of the warp and woof of our structure. Horney[10] says, "The theory of a destruction instinct is not only unsubstantiated, not only contradictory to facts, but is positively harmful in its implications." She sees aggression and hostility as reactions provoked by frustration:

> If we want to injure or to kill, we do so because we are or feel endangered, humiliated, abused; because we are or feel rejected and treated unjustly; because we are or feel interfered with in wishes which are of vital importance to us. That is, if we wish to destroy, it is in order to defend our safety or our happiness or what appears to us as such. Generally speaking, it is for the sake of life and not for the sake of destruction.

From her comprehensive experience with children, Bender[11] is not able to accept the Freudian theories of aggression and hostility. She thinks this emphasis is one-sided and "has led our students of child psychology astray." She believes "the child has an inherent capacity or drive for normality" and "that aggression in childhood is a symptom complex resulting from deprivations which are caused by developmental discrepancies in the total personality structure such that the constructive patterned drives for action in the child find inadequate means of satisfaction and result in amplification or disorganization of the drives into hostile or destructive aggression."

That psychiatrists, like other people, may get what they are looking for is suggested by Johnson,[12] in his critique of psychoanalysis. He contends that "free" association, in the analytic procedure, is not really free, that the patient is influenced by the analyst's conceptions and ideational systems. I propose, somewhat comparably, that if the analyst is looking for hostility or evidence of aggression, for example, he, by his own attitude, may easily create it or augment it in the patient. Even if hos-

tility is present with no relation to the analyst or his attitudes, there is still no reason to assume that it is a basic quality in the patient's personality or in the symptomatic configuration.

In a magazine article Alexander[13] refers to the two world wars and concurrent tyranny and cruelty as confirming "Freud's contention that behind a veneer of civilization man hides an asocial nucleus more destructive than the atomic nucleus he recently put to such devastating use." By "asocial nucleus" Alexander means an inborn destructive impulse or instinct, according to the context. Here again is an example of making the facts fit the theory — perhaps, to use the Freudian term, an example of repetition compulsion. To submit the chronologic and sociologic facts that two world wars have occurred within the past thirty-odd years, the fact that man tortures and persecutes man and the fact that man now has contrived a machine that could conceivably effect his own destruction — to present these facts as proof of an inborn impulse for destruction might connote superficial intelligence unless it is remembered that brilliant minds can be subject to circular or orbital thinking.

There is no proof whatever that, in either world war, men *generally* fought, destroyed, killed and maimed because of any deep impulse or drive — under the circumstances permissible or legalized — to do so. One might almost say that anyone knows that men fought because they had to, because their governments ordered them to and because of the consequences, personal and national, if they didn't. No doubt some men, some of the Germans, for example, in the recent war, zealously wanted to fight and had to make no effort to supplant any other primary desire, because they were so purely imbued with or indoctrinated in the master race ideology. We know that some men, at least a few, earnestly desired to be "in it" because they did not want their "way of life," the democratic ideal, to be replaced by more palpable, at least, tyranny or dictatorship. Also, no doubt, many men, gradually or latterly, became enthusiastic, more or less, because they did not want their way of life, in practical, obvious ways, to be changed for a probably indefinite period.

Most people are not particularly reflective, and therefore it may be reasonable to assume that the great majority of men who participated in the two world wars did so because they immediately thought there was no choice but to do so or because they were swept along by social forces that they did not actively oppose.

However, since men did as they did — destroyed, killed, caused untold anguish — it is asserted that they did so, whether or not they consciously knew it, because they were impelled by one of two exclusively basic motivations. Except for those who would not be suitable for psychoanalysis, if all the people who took part in the world wars and all those who did not take part, some professedly on principle, were to be psychoanalyzed — including in this number the rather timid man in a civilian-defense unit, who was never confidently sure just how to apply the Thomas splint, and the many men and women who were considered unfit for active combat — successful analysis would reveal to the analysand and analyst that each individual was in it or not in it because he was motivated by a powerful instinct for destruction that, by most individuals, had not been consciously recognized or admitted.

If the presence and import of this instinct were not revealed by and to the analysand after an indeterminate lapse of time, resistance would still be obstructive, transference would not have been effected, the subject would be found unsatisfactory for analysis or the investigation would have to be terminated because of financial considerations.

It is submitted that a more credible explanation for the chaos that man creates for himself is a drive or motivation deeper and more pervasive than a supposed instinct for destruction. This force may be called self-interest. Most of the troubles into which man, singly and collectively, gets himself can be traced back to self-interest as a basic cause. From it can arise unlimited desire for power and acquiescence, and from its frustration can develop interpersonal animosity, hate, cruelty. On a larger scale, groups can be ruthless with each other, even to the extreme of employing atomic bombs, not primarily because of a desire to destroy but from a desire either to protect their interests or to increase their influence. Self-interest or self-protection, unfortunately and tragically for human welfare, is shortsighted and unenlightened, and there are few men who can think and feel beyond it if their particular Achilles heels have been hit. It might be called the greatest and too nearly universal human obsession. Its egotistic needs, cravings and demands are so powerful, subtle, devious and unrelenting — sometimes shrewdly calculating or compromising, consciously or unconsciously, and at other times catastrophically blundering for the individual — that it could conceivably propel to man's extinction. There is little wonder that Christianity considers it an important element in the doctrine of original sin.

The unsubstantiated theory of instinctive aggression or self-destruction serves self-interest neatly and subordinately. If the theory is accepted unquestioningly as fact, the accepter is likely to excuse and exonerate himself for any hostility or hatred on the basis that, in all fairness, he can hardly be asked or required to oppose successfully, in thought or action, a force as intrinsic as the action of his heart. He may even get to thinking that it is not only all right but healthy to exhibit hostility. However, this is not the place for a disquisition on the theory of self-interest and self-protection.

As indicated previously, psychiatrists should be concerned with the trend in professional and popular thinking that allows some psychoanalysts, under the formidable aegis of Freud's power, and, in turn, many laymen to believe that they have an indisputable grasp of the truth. Any prominent, articulate physician, in expressing his opinions, may have a subtle or direct influence, which may be understood as signifying authority. In a recent review of Freud's last, posthumous book, *An Outline of Psychoanalysis*, Binger[14] writes, referring to what Freud has written, "Here is the truth, he says, in effect — my truth — take it or leave it." Then Binger continues:

> By and large, modern, educated, Western men and women have chosen to take it. They either deny it with passion and vehemence, thereby, in a sense, acknowledging its threat; or they accept it. . .But they seldom understand it. In spite of cliches about "complexes," "fixations" and all the rest, they seldom comprehend the deep metaphysical and moral implications, the epic and heroic portrayal of life as a titanic struggle between two instincts — Love and Death.

At least to me, Binger implies that Freud was probably right. When he suggests that people who do not agree with Freud's truth may be acknowledging its threat, the implication seems to be that opposition to an idea weighs in favor of the rightness of the idea — that people rarely oppose untruth. Although it may be presumed that, in general, people do not like to face facts if they hurt personally, it also may be presumed that some people do not like to accept as fact ideas or pronouncements that are not supported by irrefutable or probably irrefutable data. Surely there are scientists who, without passion or vehemence, find no reason to accept Freud's dictums. Parenthetically, I happen to know some analysts who, with passion and vehemence, defend Freudian dictums. If by "threat," Binger did not mean "truth" or what is probable, but had in mind the dictionary definition, "an expression of an intention to inflict evil or injury to another," it may not be singularly aberrant of some Western men and women to deny Freud's truth.

Again, in stating that although, by and large, modern, educated Western men and women have accepted Freud's explanation, they "seldom comprehend the deep metaphysical and moral implications," Binger seems to be producing overtones, at least, of reverence, of awesome respect for Freud's ideas, if not for the man himself. Binger is aware of Freud's intransigence, and Freud[15] leaves no doubt about it, with his introductory statement, "The teachings of psychoanalysis are based upon an incalculable number of observations and experiences, and no one who has not repeated those observations upon himself or upon others is in a position to arrive at an independent judgment of it."

"Deep metaphysical and moral implications" of various theories of man's whence and whither have been considered by poets, philosophers and schoolboys ever since man became reflective. To give uncritical credence to Freud's theories is — to borrow phraseology from Winston Churchill* — something "up with which" scientists should not put.

Psychiatrists know, or should know, that suggestibility is a characteristic of the human species, not excluding themselves. Through the ages men of forceful personality have influenced thousands of people to believe in them and in the rightness of their ideas. In our own time the phenomenon of Hitler can scarcely be overlooked.

As quoted above, Freud said, "Hatred is at the bottom of all the relations of affection and love between human beings." In analyzing the Christian commandment, "Thou shalt love thy neighbour as thyself," Freud[9] has written:

> We will adopt a naïve attitude towards it, as if we were meeting it for the first time. Thereupon we find ourselves unable to suppress a feeling of astonishment, as at something unnatural. Why should we do this? What good is it to us? Above all, how can we do such a thing? How could it possibly be done?. . .If the high-sounding ordinance had run, "Love thy neighbor as thy neighbor loves thee," I should not take objection to it. And there is a second commandment that seems to me even more incomprehensible, and arouses still stronger opposition in me. It is: "Love thine enemies". . . I imagine now I hear a voice gravely adjuring me: "Just because thy neighbour is not worthy of thy love, is probably full of enmity towards thee, thou shouldst love him as thyself." I then perceive the case to be like that of *Credo quia absurdum.*

This is very enlightening. A man who found hate behind all human affection and who found incomprehensible the import of loving one's neighbor as oneself, and who thought it absurd to believe that a man can love his enemies, is looked upon as having new and surpassing powers for penetrating personality. Probably Freud had such powers in some respects, but the powers were surely limited if he did not know and understand that there have been some men who loved and that there are some men who do love their enemies. Apparently it was not included in Freud's gifts of insight and analysis to conceive this kind of love. It seems to be a likely hypothesis that within Freud's own make-up there was a large measure of hatred, which led him to find the same quality in his patients.

This emphasis is of serious intent and does not spring from a carping or retributive attitude. The sway of Freud and his followers is great. Scientific, psychiatric progress is and will be impeded unless psychiatrists, more generally than at present, try to hold to an objective evaluation of their observations, beyond personal interest. If the founder of psychoanalysis is accepted and applauded as an incontrovertible authority, any ideas that he propounded and any ideas that are proposed under

*Winston Churchill had submitted a draft of an important wartime speech to the British Foreign Office for comment. The draft was returned with no comment whatever on content; but where he had ended a sentence with a preposition a Foreign Office purist had careted the preposition into its stiffly grammatical position. At this, the Prime Minister flew into a lather. To the offending purist he dispatched a note. "This is the type of arrant pedantry," read the note, "up with which I will not put!" (*Reader's Digest*, May, 1949.)

his system may carry a hallmark of truth that is not merited. An impressive example of this is the extent to which the concept of the Oedipus complex has made a place in psychiatric and common thought.

Sears,[16] in a report of objective investigations of psychoanalytic concepts, writes, "Freud assumed the Oedipus relationship to exist universally, and while other investigators have found instances of it, no indications of a universal cross-sex parental preference have been discovered in either children or adults." The universality of this complex had previously been refuted by Westermarck[17] for those who had ears to hear and eyes to see.

The same propensity for generalization occurs in relation to various other Freudian concepts. Again, Sears[16] remarks:

> Several sources of evidence indicate, however, that Freud seriously overestimated the frequency of the castration complex and the importance of childhood sex aggressions. The castration complex, like theories of the origin of babies, is a function of the kinds of information children have. Freud's tendency to rely on cultural universals — which do not exist — has led him to postulate universal attitudes and complexes that can be demonstrated in but a part of the population.

A dominant defect of the Freudian psychoanalytic discipline is to take or mistake a part for the whole, unwarrantedly to assert that a complex or a number of complexes, which may or may not be present, are causative in human behavior.

With no depreciation of the significant work done by psychoanalysis, Sears[16] concludes:

> The experiments and observations examined in this report stand testimony that few investigators feel free to accept Freud's statements at face value. The reason lies in the same factor that makes psychoanalysis a bad science — its method. Psychoanalysis relies upon techniques that do not admit of the repetition of observation, that have no self-evident or denotative validity, and that are tinctured to an unknown degree with the observer's own suggestions. These difficulties may not seriously interfere with therapy, but when the method is used for uncovering psychological facts that are required to have objective validity it simply fails.
>
> This does not mean that all psychoanalytic findings are false, but it does mean that other methods must be sought for their critical evaluation and validation.

The purpose of psychotherapy, including psychoanalytic therapy, is to relieve, as far as possible, the person from burdensome and handicapping behavior or thinking that prevents him from being reasonably contented. This would supposedly mean enabling the patient to get along better not only with himself but also with others. It is an almost everyday truism that the two most essential ingredients of this prescription are forebearance and tolerance, being more patient with and understanding of oneself and others, with various qualifications. In therapy, psychoanalysis surely would not state that it is interested only in the individual and has no concern with interpersonal relationships, for the two are interwoven and inseparable. If tolerance, forebearance and consideration for the other person are essential, analytic therapy must be, or should be, working toward a fairly close semblance of the Christian meaning of love.

In a recent radio broadcast (Town Meeting, on April 26), Karl Menninger, the co-author of *Love Against Hate*, concluded that we should love rather than hate. A previous reference in this paper alluded to another authority,[18] although not a scientist, who said much the same thing some years ago. If psychoanalysis, in its endeavors, finds reason to emphasize what Christianity has been advocating for centuries it seems that it and religion are not so disparate as some have feared. However, it should be said that to date there is no evidence that students, professors or advocates of psychoanalysis or persons who have gone through the expensive, time-consuming, analytic treatment are any more forebearing, considerate or loving of their fellow men than other people.

Earlier in this paper there was reference to the importance of constitutional and hereditary determinants in psychiatric illness. In discussing psychosomatic states, Freyhan[19] again emphasizes that these constituents should not be disregarded. He writes that some psychiatrists, with their interest in psychogenic factors, seem to forget that the somatic side of the alliance exists. This could be thought odd if the very name of the partnership is kept in mind. Freyhan says, "We are told again and again that it is the conflict between powerful dependent needs and the aggressive solution of this conflict in the face of frustration of the receiving tendencies which is of crucial importance for the development of peptic ulcers." The sentence construction is somewhat confused, but the meaning is clear enough. He continues:

> Psychosomatic thinking can neither be based on well meant sociologic platitudes nor on outdated analytical concepts.
>
> Unfortunately most psychiatrists pay little attention to modern genetic and constitutional researches, in fact the term "constitution" is practically taboo and still associated with therapeutic nihilism and reactionary organic-mindedness.

Daniels[20] gives a nod to the somatic side but apparently thinks the psycho more important. To quote him:

> One of the misconceptions in connection with the inclusion of psychic factors in the causation of physical disease is that these factors are made to represent "the whole reason" for the condition. Such an impression may arise from the overenthusiasm of the investigator or the misinterpretation of the critics.
>
> The personality of these patients is vulnerable because of the persistence of emotional immaturities with marked inner dependence on a parental figure, generally the mother.

Somewhat belatedly Alexander[21] allows a place for heredity in neurotic development. He writes:

> At the beginning of the Freudian era the importance of childhood experiences was discovered and claimed as *the* cause of neurosis. Gradually we have come to recognize at least three sets of factors which together in varying de-

grees contribute to neurotic disease. These factors are heredity, early experiences of life, and actual difficulties. A patient with poor hereditary equipment may be destined to develop neurosis no matter what happens to him.

Recognition of other factors besides early life experiences may have come gradually to some of the analysts, but they have been considered as possibilities and probabilities by many psychiatrists long before some groups of psychoanalysts admitted their possibly determining presence. If analysis takes credit for discovering hereditary, constitutional and immediately present difficulties in the patient's life situation as elements to be assessed in neurotic reactions, it gives itself the position of arbiter in psychiatry, which position actually it does not hold.

In the paper previously cited, Gregg[2] makes several references to the subject of heredity. He writes, "Until the medical profession sees its patients as having genetic as well as psychological and somatic histories we shall have to admit our professional ignorance of heredity and the only fragmentary knowledge as yet revealed as one of the primary remediable limitations of psychiatry." He says further, "Because among human beings an observer seldom can expect to outlive both the child and the child of the child he observes, the hereditary factors affecting mental defect, disease, or disorder and the components of personality, temperament, and patterns of behavior have received but little of the attention they deserve."

Gregg concludes, "Though it is still early to know how to think about human heredity there are few subjects more potent for the prevention of psychiatric defect, disorder, and susceptibility to strain. . . . I cannot escape the conviction that we must begin to seek the way to find the truths of human inheritance."

No psychiatrist with therapeutic sense and sensibility will find his interest in or enthusiasm for therapy dampened because of therapeutic limitations. In spite of its tragedies, psychiatry has beyond estimable measure, mitigated human suffering. Until man, through religion or science, is reborn, psychiatry should hold a contributory and honored province and it will hold it best through a becoming admixture of humility.

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Weekly Clinicopathological Exercises

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

BENJAMIN CASTLEMAN, M.D., *Associate Editor*

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CASE 35331

PRESENTATION OF CASE

First admission. A fifty-one-year-old salesman was admitted to the hospital because of a cough productive of blood-streaked sputum.

He had been in good health until three months prior to admission, when he first noticed streaks of bright-red blood in his sputum upon coughing. These episodes occurred about every other day for a week and then cleared. One week later he had another bout of hemorrhage that seemed to come from the mouth and nose and lasted ten minutes. Since that time he had had a number of episodes of coughing with blood-streaked sputum, unrelated to any particular activity. The patient stated that he had had a chronic cough for many years, usually associated with smoking. He denied a recent change in the character of the cough or any increase in the amount of sputum. He had lost 15 pounds in weight during the year prior to admission but had regained 10 pounds in the three-month period before coming to the hospital. One evening, four months before entry, he had a chill and vomited some dark material. Later that night he awoke with pains in the mid-back. He had no cough or hemoptysis at this time, however, and felt well the next morning. Two weeks later an abscessed tooth was removed under a local anesthetic. The patient stated that for two months before admission he had noticed that one artificial tooth was missing. During the month prior to entry he had mild pain in the right arm and shoulder when he raised his arm to put on his coat. There was no history of wheezing, dyspnea, cyanosis or further chills. His appetite was good.

The past history was otherwise noncontributory except for a tonsillectomy and an attack of "rheumatism" thirty-six and twenty-eight years before, respectively. Seven years before admission the patient was taken into the Army for a nine-month period. His father and a brother had died of tuberculosis some thirty-five years before.

Physical examination revealed a well developed and nourished man in no acute distress. The heart and lungs were normal, and aside from a small 1-cm. cyst under the right eyelid, no abnormalities were recognized.

The temperature, pulse and respirations were normal.

The urine was normal. Examination of the blood showed a hemoglobin of 14.4 gm. and a white-cell count of 9400, with 56 per cent neutrophils, 35 per cent lymphocytes, 3 per cent monocytes and 6 per cent eosinophils.

A roentgenogram of the chest showed a patchy area of increased density in the superior segment of the right lower lobe extending from the hilus to the pleural surface laterally and posteriorly. Above the area of increased density was an area of normal density surrounded by a thin rim of increased density. This was thought possibly to be a chance crossing of vascular shadows or a very thin-walled cavity. No foreign bodies were recognized.

Bronchoscopy was negative except for slight reddening of the right main bronchial tree. A cytologic smear of the sputum was negative.

In the hospital the patient's condition remained unchanged. A second history taken five days after admission established a different chronology to the points of progress of his disease as follows: an episode of grippe or cold four months before admission, a tooth extraction two weeks later, a dental plate inserted one week later and his first bout of hemoptysis some time thereafter. Three separate examinations of the sputum failed to reveal acid-fast bacilli. A culture of the sputum grew out abundant alpha-hemolytic streptococci and a few beta-hemolytic streptococci.

It was believed that the lesion in the right lower lobe was probably an abscess, and the patient was discharged on the sixth hospital day.

Second admission (about eleven weeks later). In the interval the patient had been well and free of hemoptysis until ten days before entry, when he again coughed up small amounts of blood-streaked sputum. At this time, he also noted a temperature of 101°F., excessive sweating and a pleuritic type of pain in the lower portion of the right chest. The pain disappeared after two days.

The findings on physical and laboratory examination were essentially unchanged. A roentgenogram of the chest showed the density in the right lower lobe to be somewhat larger and its margin less distinct than on the previous study. There were also linear markings of increased prominence extending from the abnormal density to the hilus. There was a small fluid level within the density. There was a questionable small amount of fluid within the right pleural cavity.

On the eighth hospital day an operation was performed.

Differential Diagnosis

Dr. Carroll C. Miller: The history of this case, the presumptive diagnosis and the subsequent surgical disposition seem to revolve around three salient features: hemoptysis, signs and symptoms of pulmonary infection and x-ray findings in the right lower lobe. The causes of hemoptysis in the lower respiratory tract, in a broad sense, may be classified as follows for a brief review: foreign body, with or without subsequent necrosis; infections, with necrosis and erosion of blood vessels (and most important, among these infections, are abscess, bronchiectasis, pneumonia or pneumonitis and tuberculosis); tumors, either benign or malignant, primary or metastatic — the latter rarely cause or produce hemoptysis; infarct; and finally heart disease and congenital anomalies of the vascular tree.

In view of the x-ray findings in this case many of these can be omitted from discussion. Recurrent hemoptysis seems to direct our consideration into certain definite channels. Intermittence of hemoptysis is not uncommon, especially in tumors or infectious processes, since the growth of tissue in a tumor or the alternate necrosis and focal thrombosis associated with infection may account for freedom from bleeding for varying periods.

This man had no previous history of any trouble in his lungs as far as we know, but he did have probable exposure to tuberculosis, since his father and a brother had died of tuberculosis many years previously. This fact may or may not have a bearing on the diagnosis.

I was prompted to wonder why he spent such a short time in the Army, nine months, according to the record, in about 1942. But no explanation is given for that.

He had had marked weight change — he lost 15 pounds in the year before admission, but this was before he became ill. During the period when his symptoms and signs were developing he had regained 10 pounds of that weight loss. So these details do not contribute in any definite way to the making of a diagnosis.

The significant data in the history are that four months before his first admission he had an episode of chills and vomiting; two weeks later, a tooth extraction was done, and then the fitting of a dental plate, and, curiously enough, two months prior to admission he noticed that one of the artificial teeth was missing. This might be called the saga of the missing tooth. Following this episode he began to have blood streaks in his sputum. There are some details that I have tended to pass over. The arm and shoulder pain seem to have had no striking relation to the present illness. They may very well have been bursitis or tendinitis or some recrudescence of rheumatism of many years past. The absence of wheezing noted in the protocol is important in indicating no significant obstruction to the bronchial tree. The culture as reported is not of importance. We have been tending in recent years to put less and less stress on sputum-culture reports in conditions such as this, because, invariably, there is a mixed infection and only when we are interested in outlining a plan of antibiotic therapy are we interested in knowing exactly what the organisms are. In other words, in cases such as this with a relatively small, limited focus, the bacteriology does not significantly contribute to the making of a diagnosis except of course in the presence of tuberculosis.

In recapitulation, therefore, we have an episode of infection, chill and mid-back pain and then later hemoptysis. X-ray studies at that time showed segmental density with a question of cavity in this area. The location of this cavity is emphasized in the protocol with the description of an area of normal density surrounded by a thin rim of increased density. This is above the segmental density noted to be in the superior segment of the right lower lobe. Then the patient had a respite from symptoms and signs for three months and went on to recrudescence, with fever and chest pain of the pleuritic type. I postulate that he had an infectious process, which may have been the simple uncomplicated lung abscess type, associated with adjacent pneumonitis. There may have been a foreign body present. The radiologist tells me that some artificial teeth may not be radio-opaque, and therefore may not be seen in a plain film of the chest. There may have been a tuberculoma present, which had not been discovered previously. This may have broken down, emptied and involved the segment in an inflammatory reaction. Many tuberculomas contain live tubercle bacilli, and the presumption is that some would have been seen in the sputum, but their absence is not conclusive evidence against the diagnosis of tuberculosis. Likewise, the absence of cancer cells in the Papanicolaou smear is not definite evidence against cancer of the lung. However, our laboratory has now a very high percentage of positive results by this method. The chronic pneumonitis of the type reviewed by Dr. Waddell* recently in this hospital may have a small cavity; 4 out of 10 cases that he has reported had cavities up to 1.5 cm. in diameter. I am not able to go any farther with a definite diagnosis than to say that this was a chronic lung abscess, but I still would like to think that there probably was a foreign body in the form of a missing tooth in this area. Tuberculosis may have been found or, likewise, a focus of cancer. I was given the opportunity to study the x-ray films before I presented this case, and was impressed by the ap-

*Waddell, W. R., Sniffen, R. C., and Sweet, R. H. Chronic interstitial pneumonitis: report of 10 cases showing chronic interstitial pneumonitis and unusual deposits of cholesterol. *J. Thoracic Surg.* (in press).

pearance, as Dr. Wyman may point out, of an increase in the width of the wall of the cavity noted in the serial films. May we see the films, Dr. Wyman?

Dr. Stanley M. Wyman: The lesion described lies in the right mid-chest laterally. There is streaky density extending from the lesion to the hilus. In the lateral view this is seen to lie far posteriorly as recorded, probably in the superior segment of the right lower lobe. The first films do not show conclusively a cavity. The examination, done approximately two months later, shows a more discrete and somewhat larger area of infiltration, with an apparent fluid level, and, as Dr. Miller suggests, a thickened wall above. This is seen in the lateral view, and the fluid level is best demonstrated in the lateral projection. One month later the infiltration in the right lower lobe is still larger, and the spot films at this time demonstrate clearly a central area of rarefaction with a probable, small fluid level. The apparent increase in the size of the wall superiorly is seen. Whether this represents actual intrinsic increase in the size of the wall or apparent increase because of atelectasis of adjacent lung, it is impossible to say. Well demonstrated is the pleuritic reaction adjacent to this area of disease. I think it is worth noting that the inner wall of the cavity seems to be smooth, not shaggy or nodular.

Dr. Miller: That feature is somewhat against the presence of cancer because in such lesions as we have seen previously there is some irregularity or nodularity of the lining shadow. I might add that the likelihood that this was tuberculoma is very slim. Certainly, in this early picture I would expect a more discrete, clearly rounded, denser shadow if this were a tuberculoma. The possibility of cancer, however, is borne out by several facts. The tendency for density to extend down toward the hilus of the lobe indicates either extension of the process or metastatic obstruction of that segmental bronchus. Also, the fact that, following the return of symptoms three months after the patient was in the hospital the first time, the surgeon elected to proceed with this operation suggests his suspicion of the presence of cancer. Certainly, cancer must be suspected strongly in all these cases, and operation should be done first to make a diagnosis; secondly to cure the patient, if possible; and thirdly, to relieve him of these annoying, terrifying symptoms if possible. I would still, however, persist in my first diagnosis of a nonspecific abscess, with pneumonitis, possibly due to the retention of foreign body, chiefly because of the roentgenographic evidence and the nature of the hemoptysis and of the patient's clinical course.

Dr. E. B. Benedict: I doubt if this was foreign body. If it was a tooth, it probably was the patient's own tooth, and that ought to show by x-ray study or by bronchoscopy. I certainly agree with Dr. Miller that the important thing is to treat it as if it were carcinoma until proved otherwise by explorative thoracotomy.

Dr. John G. Scannell: That is what the patient thought too. He was convinced from the beginning that he had a cancer, and it was difficult not to agree with him. However, when we first saw him, the possibility of an inhaled tooth became apparent and we bronchoscoped him with that in mind. At this time it did appear that the parenchymal shadow was improving, and it was the decision of Dr. Churchill and Dr. King to follow him closely and meanwhile rule out tuberculosis, which seemed the most likely diagnosis. After three months he began to spit blood again, and with the chance of carcinoma now even more likely, exploration was advised. He was operated on by Dr. Churchill, whose pre-operative diagnosis was either carcinoma or tuberculosis.

When the chest was opened the disease process was obviously limited to the superior segment of the right lower lobe. There was no free fluid. The involved segment was firm and injected, but there was no discrete mass and no puckering of the pleura so often seen with carcinoma. On gross inspection the lesion appeared to be benign, in keeping with the diagnosis that Dr. Miller has chosen. A segmental resection was done, largely as a biopsy, and inspection of the lesion in the gross indicated that that was all that was necessary. We could find no foreign body, and no apparent cause for the disease.

Clinical Diagnosis

Carcinoma?
Tuberculosis?

Dr. Miller's Diagnoses

Chronic lung abscess (with foreign body?).
Carcinoma?
Tuberculosis?

Anatomical Diagnosis

Abscess of lung.

Pathological Discussion

Dr. Tracy B. Mallory: We found a small abscess cavity, 8 mm. in diameter, which was surrounded by an area of chronic pneumonitis. There was no foreign body identified. The histologic appearance of the wall of the abscess cavity was characteristic of an organized infectious process of the lung, with many fibrous plugs in the respiratory bronchioles and some in the alveoli. It did not show any marked degree of the lipoid reaction that is seen in many cases with similar histories and similar x-ray findings.

Our diagnosis was a simple abscess of the lung.

Dr. Daniel S. Ellis: Do you ever see such an abscess following an infarct?

Dr. Mallory: Almost never, I would say, in the human being. In animal experiments Dr. Cutler produced them many times.

CASE 35332

Presentation of Case

A thirty-three-year-old woman entered the hospital because of a lump in the right breast.

Approximately two years before admission she first noticed an indurated area in the inferior aspect of her right breast. She experienced sharp pain in this area just before the onset of each menstrual period. It changed little in size until she became pregnant sixteen months before entry, when it increased, only to subside again when she miscarried at two and a half months. Ten months before entry she again became pregnant with coincident enlargement of the areas of induration, which again regressed when she miscarried at six weeks. Six months before entry she again became pregnant, and the area markedly increased in size as the pregnancy progressed. She was occasionally bothered by sharp pains in the breast but had no bleeding or discharge from the nipple.

The past history and system review were negative.

Physical examination showed a well developed and well nourished woman in no distress. Inferior to the right nipple occupying most of both lower quadrants of the breast was an ill defined, firm mass within the breast about the size of a tennis ball. There was no retraction of the overlying skin or nipple. The uterus was enlarged to a size consistent with a six-month pregnancy. The remainder of the physical examination was negative.

The temperature was 98.8°F., the pulse 80, and the respirations 20. The blood pressure was 130 systolic, 80 diastolic.

The routine urine examination was negative.

On the second hospital day an operation was performed.

Differential Diagnosis

Dr. Gordon A. Donaldson: The one thread running through this history that catches my eye is the fact that this patient of thirty-three had a tumor that was sensitive to the hormones associated with pregnancy. I am going to grasp at that fact to rule out other indurated tumors that might cause the physical features of the tumor described — namely, a low-grade type of abscess, fat necrosis, tuberculosis, sarcoid disease and so forth — and will limit the discussion to chronic mastitis, the fibroadenoma group of tumors and perhaps cancer. I think it is very unlikely that this was cancer or sarcoma — although there are others here who certainly could elaborate on that point at greater length — because I doubt very much whether a cancer of the breast could be as responsive as this particular tumor was to hormonal factors associated with pregnancy. We do know that some types of cancer change during pregnancy, or increase in size, but I doubt if we should entertain such a diagnosis very strongly in this particular case. So we boil it down to a fibroadenoma with perhaps cystic changes or cystic mastitis itself.

There are several additional points that would be helpful in the history — namely, the condition of the other breast, the presence or absence of axillary changes and a few notes regarding what was seen on simple inspection of the breast. We have been taught that a good deal can be gained by simple inspection of the breast with the patient's hands behind the head, first while sitting up and then lying down. It is also said that 90 per cent of tumors that can be picked up by inspection in such positions prove to be malignant. I think this tumor would probably have been seen on inspection. I doubt very much, however, whether we should consider it malignant. I also doubt if this represented a pericanalicular fibroadenoma, since the tumor was too large. We are therefore left with the possibility of intraductal papilloma, with cystic change. We have a history of no nipple discharge, which would be against such a tumor. The fact that this lesion was indurated and also painful, producing pain with the menses and with pregnancy, is greatly in favor of a mastitic process.

So the presence of a large, indurated tumor, changing under hormonal stimulation and producing pain, leads me to believe that chronic cystic mastitis in some form is probably the best diagnosis.

Dr. Richard H. Wallace: I first saw this patient in my office two years before admission, when she said that she had noticed a small lump in her breast two years previously that had not changed in size during the interval. She sought professional advice because she had planned to be married two days later. At that time it measured 3 cm., and was firm. I had the impression that it was a benign tumor, but I advised her to have it removed. We talked over the matter of pregnancy, since the patient stated that she hoped to start a family promptly. I suggested that she have the tumor removed in the near future. I saw her the second

time eighteen months later. She had been married in the meantime, had become pregnant and had miscarried. During the pregnancy the tumor definitely increased in size and subsequently decreased. At the next visit, I should say that the tumor had increased slightly in size, but she again declined surgery because she was leaving the country by air the next day. I saw her again when she was six months' pregnant, at which time she had a tumor measuring 16 cm. in greatest diameter. It was more like two tennis balls stuck together, in lobular fashion. The tumor was visible in all positions. The opposite breast was normal for a six months' pregnancy. The axilla had no palpable lymph nodes, and there was considerable dependent edema of the skin in the lower portion of the breast, presumably on a mechanical basis.

Dr. Joseph C. Aub: Was it cystic?

Dr. Wallace: No cystic areas could be demonstrated.

Dr. Tracy B. Mallory: Dr. Nathanson, would you like to comment?

Dr. Ira T. Nathanson: These manifestations of the tumor in question are seldom seen because lesions of this type are often removed before pregnancy or are not necessarily responsive to hormonal stimuli. This lesion responded on three occasions during pregnancy in apparently the same fashion as the breast. It also became sensitive and, I judge, enlarged in the pre-menstruum. This probably paralleled an increase in activity of the breast, which appears to be dependent upon hormonal fluctuations during the menstrual cycle. Likewise, during pregnancy and lactation these endocrine stimuli are increased. I have seen a few other patients who have refused operation on the first occasion. In one case, the patient had a tumor the size of a large grapefruit, which regressed to about 3 cm. during involution of the breast following the first pregnancy and lactation. Here, again, the tumor responded to hormonal stimulation during a second pregnancy.

This brings up one point about which there is disagreement — that is, whether fibroadenomas are true tumors or merely represent localized manifestations of breast tissue that are unusually reactive. The latter opinion is one that is held by some of us here.

Clinical Diagnosis

Sarcoma of breast?

Dr. Donaldson's Diagnosis

Chronic cystic mastitis.

Anatomical Diagnosis

Lactating fibroadenoma of breast.

Pathological Discussion

Dr. Mallory: The tumor removed was large and kidney shaped, as Dr. Wallace has already brought out. The microscopical structure was that of a typical adenofibroma, but the epithelial elements were unusually active, and a large proportion of them, as well as the surrounding normal breast tissue, showed evidence of secretion as one would expect at six months' pregnancy.

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CARDIAC CONTRAINDICATIONS TO SURGICAL PROCEDURES

The patient with heart disease who develops a disorder requiring surgical intervention often presents a taxing therapeutic dilemma to the attending physician. To withhold surgery may be almost certainly fatal, but to permit a major surgical procedure in the face of serious heart disease may seem equally foolhardy. The surgeon and the anesthetist have done a great deal to minimize the danger of operation to patients with heart disease. Improvements in surgical technics, anesthetic agents and insistence on the constant maintenance of an adequate supply of oxygen represent major advances in the direction of safe operation for cardiac patients. But the dilemma still recurs, although less frequently than was formerly the case.

From the point of view of the cardiologist, heart disease itself is not necessarily a contraindication. Nevertheless, many patients who need elective and occasionally some who need emergency operations are denied proper surgical treatment merely because of the presence of valvular, hypertensive or some other type of heart disease. On this basis alone, such a stand may not be justified.

When the time factor is not of prime importance, the cardiac contraindications to elective procedures may be defined with fair precision. In this situation, there are at least five such contraindications: cardiac decompensation, acute myocardial infarction, acute, paroxysmal arrhythmias, active myocarditis or pericarditis and bacterial endocarditis. In cases of cardiac decompensation, whatever the etiology of the heart disease, compensation should be restored before elective operation is attempted. Likewise, an acute myocardial infarct must be allowed to heal before the procedure is carried out. Paroxysmal arrhythmias must be abolished or controlled. Active involvement of the myocardium or pericardium, whether rheumatic or due to some other etiologic agent, should be allowed to subside before operation is undertaken. Bacterial endocarditis is such a serious disease in itself that no elective surgical procedure should be considered until it is controlled by appropriate treatment with antibiotics. Very severe coronary vascular disease with angina pectoris may constitute another contraindication. Milder grades of the disease seldom do so, although the patient should be protected with extreme care from oxygen lack and blood loss during operation.

In surgical emergencies, such as acute intestinal obstruction and common-duct stone, one may be driven to ignore the cardiac contraindications. Chances may have to be taken to serve the patient's best interests. Even in such desperate situations it is usually possible to minimize the risk to the patient if the surgeon, cardiologist and anesthetist pool their knowledge and deal with the problem along physiologic lines. In addition to proper use of cardiac drugs, the patient's tolerance for intravenous fluids must not be exceeded. Intravenous administration of saline solution is often a deadly agent in cardiac patients and seldom has a logical place in their preoperative or postoperative management. The principle of fluid *replacement* therapy

is nowhere so crucial as in this situation. That which is lost — whether it is whole blood, water, chloride or protein — should be replaced as accurately as possible; no more and no less. The lavish hand must be stayed if the patient is to be given his best chance of survival. Digitalis and restorative drugs cannot set right the wrong done by poor judgment regarding intravenous fluid therapy.

Many other therapeutic points could be mentioned. There remains, however, no substitute in a therapeutic dilemma of this magnitude for sound clinical knowledge and observation, and a thorough grounding in the physiologic principles underlying rational cardiovascular therapy.

POLIOMYELITIS—A DIAGNOSTIC PROBLEM

With the arrival of the poliomyelitis season, the problem of diagnosis again comes to the fore. Little difficulty is, of course, encountered with the cases exhibiting frank paralysis. In recent years, however, physicians have been attempting to recognize the nonparalytic form of the disease. Here the diagnostic problem becomes exceedingly difficult.

The differences of opinion that arise among groups of physicians were illustrated in an incident in Massachusetts in 1948. In the central portion of the State two communities side by side were having illnesses probably due to the same virus. In one, the pattern was to call the illness lymphocytic choriomeningitis — in the other, meningitis of undetermined origin. A short distance away a large group of cases occurred in another community where it may well have been that the same virus was operating. In this community the cases were called poliomyelitis.

In the absence of a laboratory diagnostic test, it is impossible to say which of the three groups of physicians correctly diagnosed the condition. The absence of paralysis in all the cases makes the diagnosis of poliomyelitis quite unlikely. This incident emphasizes the ease with which an incorrect diagnosis can be made in such borderline cases.

Poliomyelitis started early in Massachusetts in 1949. Whether this foretells an epidemic year or whether it merely indicates an early poliomyelitis season cannot be determined until the trend of the disease in the immediate future can be ascertained. The comparatively higher prevalence since 1944 may indicate that the disease is spread over a period of four or five years instead of having a short one-year outbreak. The return to the normal proportion of two-thirds paralytic to one-third nonparalytic cases may indicate that the confusing virus prevalent in 1948 may be of less importance this year. Last year two-thirds of the diagnosed cases were nonparalytic.

ROSEOLA

One of the commonest diagnostic errors that occur in pediatric practice is the failure to differentiate roseola infantum (or exanthem subitum) from other febrile affections — especially pharyngitis, measles and German measles. The excellent paper by Berenberg, Wright and Janeway that appears elsewhere in this issue of the *Journal* provides a critical analysis of this somewhat enigmatic disease and should be of service in reminding the practitioner of the possibility of its occurrence.

The febrile eruptive disorder called roseola is of relatively recent identification in the literature, Zahorsky having first described it in 1910, and attached to it its common name. It had, however, been known and so-called by practitioners prior to this literary event. Perpetuation of the designation was unfortunate for accurate diagnosis, in that the name as well as the appearance of the rash brings to mind both rubeola and rubella. Further knowledge of the potentialities of the viral infections in general has increased the importance of its differential diagnosis.

Roseola, on account of its ordinarily mild nature, is not commonly seen in hospital practice — 181 cases were observed at the Children's and Infants' hospitals in the ten-year period from 1937 to 1947. This group, however, representing more than mildly sick patients, indicates the latent possibilities for mischief that exist with almost any viral infection.

Roseola may occur at any time of the year, although its periods of highest incidence are in late spring and mid-autumn. Ninety-five per cent of

cases occur between the ages of six months and three years. Its most characteristic feature is that the rose-pink, somewhat morbilliform rash occurs almost invariably at the time of defervescence from a three-day to five-day fever, and actually, unlike the eruptions of most of the acute exanthemata, marks the beginning of convalescence. Attention to this one striking characteristic would prevent many a mistaken diagnosis.

No specific viral agent has yet been isolated, and the relatively rare spread by contact, with occasional apparent instances of unusually long incubation periods, marks roseola as a disease of "poorly defined communicability." Despite its almost invariably good prognosis, roseola may nevertheless occur as a severe infection with convulsions as its commonest complication. This is suggestive of the group of viral diseases that require continued study in view of the insidiousness of the attack and the remoteness of the consequences.

WASHINGTON REPORT ON THE MEDICAL SCIENCES

THE idea of the temple on the hill dates back, no doubt, to the earliest sacrificial altar. The geographic elevation placed the worshiper a little nearer to the object of his veneration, in addition to which his devotions could more easily be observed by the less exalted members of the tribe. The Tower of Babel provides an extreme example of carrying a good thing too far.

The custom, once sacred, has become secular as well. The modern state places its seat of government also on a hill, probably to make it appear a little nearer to the source of divine guidance; perhaps also to catch the cooling breezes that have been so conspicuous by their absence from Capitol Hill this summer.

Capitol Hill seems to generate heat, in fact, rather than escape it. The case of socialized medicine, which had been under control for a number of weeks, burst into flame again in late July with the introduction of President Truman's reorganization plan, including the creation of a Department of Welfare. With the country heading toward the footing of a welfare state, this would presumably become the tail that wags the dog. In its defense Mr. Ewing, according to *Washington Report on the Medical Sciences*, of July 25, "disavowed charges that have been made that elevation of FSA to Department rank would bring new prestige and new powers that would be employed for all they were worth toward achievement of national compulsory health insurance." The plan, he stated, contains nothing that would add to the authority he already possesses, to which he subjoined rather naïvely, "Besides, the President has not told me he intends to appoint me as the new Secretary."

A Department of Health with a physician as Secretary is desired in many quarters instead of a Department of Welfare and is being supported by the American Medical Association. The question whether the Secretary should be of necessity a physician can be argued. Secretaries of War and of the Navy have usually been laymen, and better so; the Secretary of Labor is not commonly a laborer, although the country has always breathed more freely when the Secretary of State was a statesman.

Sometimes half a loaf, buttered, is better than a whole loaf, dry.

Veterans Administrator Carl R. Gray, Jr., has finally conceded that Dr. Paul B. Magnuson, chief medical director, should be in direct charge of the Administration's medical program. He has acknowledged in writing, also according to *Washington Report on the Medical Sciences*, that the sole purpose of operating veterans hospitals is the care and treatment of patients.

An opinion is prevalent, that a physician, who is a writer, must be a poor practitioner; therefore, an author, however distinguished, cannot compete with a neighbor who may not be able to write his mother tongue grammatically . . . in other words, a man cannot be successful in both, and hence the public sentiment, to an extraordinary extent, is decidedly in favor of a physician who does not trouble himself with books, or divert his mind from the grave consideration of visiting patients, by interesting himself in the details of science.

Boston M. & S. J., *August 15, 1849*

MASSACHUSETTS MEDICAL SOCIETY

COMMITTEE ON LEGISLATION

One of the most controversial issues before the Massachusetts General Court during the current legislative session was the Cash Sickness Compensation Bill. This bill was strongly supported and strongly opposed. Hearings were stormed and stormy.

The bill provided for a state-operated monopolistic compulsory cash sickness program for workers. Major argument hinged chiefly upon this proviso. A spokesman for the CIO stated before committee, "I think this is legislation that is long overdue. It happens to be in the Governor's message and I want to say very emphatically that if we don't get a state fund program, we are on record that we will accept no cash sickness at all. We will ask the legislature to defeat it if the committee doesn't report it favorably, and we will ask the Governor to veto it because the workers want no part of profiteering in human misery and sickness."

The Cash Sickness Compensation Bill was finally defeated by the narrow margin of three votes. The problem is now slated for study by a commission. The brief filed by direction of the Committee on Legislation of the Massachusetts Medical Society follows:

STATEMENT OF THE MASSACHUSETTS MEDICAL SOCIETY ON HOUSE NO. 2591, THE CASH SICKNESS COMPENSATION BILL, FOR THE COMMITTEE ON WAYS AND MEANS OF THE MASSACHUSETTS GENERAL COURT

The Massachusetts Medical Society finds itself not in complete agreement with House No. 2591, the Cash Sickness Compensation Bill, as it now stands.

This bill has been carefully studied by the Society since printed copies became available. It is not our purpose to single out points we would praise or condemn as private citizens and voters interested in the broad problems of the public health.

Our principal function as a medical society is to view this, as all other legislation pertaining to health, as working for or against the best possible standards of medical progress and the mental and physical health of the public.

Under this bill as drawn the physician is held responsible for the medical operation of the sickness compensation plan. The claimant for benefits must have filed a physician's certificate (*Sec. 7 [a] [4]*) and, "if directed to do so by the director, [shall] have submitted to a medical examination for the purpose of determining his sickness." (*Idem.*)

In practice this requirement would charge practicing physicians not only with administrative responsibilities but with underwriting responsibility as well. E. H. O'Connor, managing director, Insurance Economics System of America, has stated, "As these state plans begin to expand, as is evident from legislative bills introduced in Rhode Island, California and New Jersey, more benefits will be paid and the cash sickness benefits of a state fund must be protected. It will naturally follow that the state will be forced to set up rules and regulations for the certification of claimants. . . ."

Solvency of a state fund might be protected if it were possible to determine ability to work in all instances through promulgation of rules and regulations and the application of existing medical knowledge. Every physician knows there are many instances where it is absolutely impossible to determine medically whether a person is or is not able to work.

This is particularly true in cases of mental illness. The definition of "sickness" (*Sec. 3 [m]*) contains the words ". . . because of his physical or mental condition, he is unable to perform his regular or customary work." It was stated in Federal Security Administrator Oscar R. Ewing's report to the President that from 30 to 50 per cent of all persons consulting doctors have complaints due at least in part to emotional disorders. For the evaluation of these complaints it is stated 4500 psychiatrists are available in this country where some 15,000 are needed.

From the point of view of the medical profession, charged with the responsibility of certification and professional administration, it cannot be too much emphasized that this program concerns itself essentially with temporary disability. Experience has shown the importance of adequate administrative control for the successful operation of such plans. We wish to stress that the evaluation of conditions of temporary disability depends upon factors which are at best 50 per cent subjective.

The dangers to the solvency of the cash sickness compensation fund from malingering have been recognized by the architects of this bill. "He [the director] shall also publicize the potential results of malingering." (*Section 18.*) In view of what has been said above concerning the subjective factors of temporary disability it must be made clearly apparent that merely designating the physician as the policeman is not the answer. There are no magic tests for the evaluation of purely subjective symptoms.

For the 6750 physician fellows of the Massachusetts Medical Society we feel we can promise full co-operation within the code of ethics of the Society and of the American Medical Association within the limitations previously noted. We point out, however, that no criteria for diagnoses are established within the bill and there is no provision for a medical advisory board to assist in this and other important functions under the bill.

The bill defines a "physician" (*Sec. 3 [s]*) as "an individual licensed to practice medicine or dentistry under the laws of this or any other state." For some 2500 physicians licensed to practice in Massachusetts the added ethical controls over fellows of the Massachusetts Medical Society are absent. For them the basic legal controls of malpractice laws are the limits to which they can be held.

Under *Section 8. Claims and Appeals* (*e*) provision is made for calling as an expert witness any medical adviser appointed by the director. There is no provision made for establishing the qualifications of such experts.

In view of the tremendous responsibilities placed upon the individual physician and upon the medical profession in the administration of this plan, we seriously question the absence of the physician's voice in the setup for administrative control.

This defect is the more notable since *Section 12. Penalties* states, "Any person convicted of a violation of any provision of this chapter or of a violation of any order, rule or regulation of the director or of the division made under the authority of any provision of this chapter, the punishment for which is not otherwise provided, shall be punished by a fine of not more than fifty dollars for the first offense, and for any subsequent offense within a period of two years immediately following his final conviction of a like offense by a court of the Commonwealth, shall be punished by a fine of not less than fifty dollars nor more than two hundred dollars, or by imprisonment for not more than two years, or both."

Respectfully submitted for the President and fellows of the Massachusetts Medical Society.

JOHN F. CONLIN, M.D.
Director of Medical Information and Education

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

SCARLET-FEVER STREPTOCOCCUS ANTITOXIN

The Division of Biologic Laboratories of the Massachusetts Department of Public Health discontinued the production and distribution of scarlet-fever streptococcus antitoxin on August 10, when the small stock reached its expiration date. Owing to the small amount of the antitoxin used in recent years, it would be an economic loss for the Department to continue its manufacture.

REFRIGERATION STORAGE OF VACCINE

The following letter regarding refrigeration storage of vaccine is believed to be of interest to physicians:

Geoffrey Edsall, M.D.
Antitoxin and Vaccine Laboratory
Massachusetts Department of Public Health
Forest Hills, Massachusetts

Dear Dr. Edsall:

I thought you might be interested to know that at the Brookline Friendly Society, where we vaccinate somewhat more than 125 children a year, we have, using the Massachusetts vaccine, which is obtained from the Laboratory on the same morning on which the vaccinations are administered, had a 100 per cent take on the first vaccination for four successive years — in a group totaling well over 500 children — without a miss. The ages range from six months to three years, most of them being in the age group from six months to one year. Your product and the methods of storage that you employ are certainly as nearly perfect as anything could be.

Incidentally, it is interesting to note that my batting average is very much lower here in the office, owing, I am sure, to the fact that we are not able to keep the vaccine constantly below freezing.

Very sincerely yours,
RICHARD C. TEFFT, JR., M.D.

266 Beacon Street
Boston

CONSULTATION CLINICS FOR CRIPPLED CHILDREN IN MASSACHUSETTS

The September schedule for Consultation Clinics for Crippled Children in Massachusetts under the provisions of the Social Security Act follows:

CLINIC	DATE	CLINIC CONSULTANT
Haverhill	September 7	William T. Green
Brockton	September 8	George W. Van Gorder
Lowell	September 9	Albert H. Brewster
Salem	September 12	Paul W. Hugenberger
Greenfield	September 12	Charles L. Sturdevant
Gardner	September 13	Carter R. Rowe
Worcester	September 16	John W. O'Meara
Springfield	September 20	Garry deN. Hough, Jr.
Pittsfield	September 21	Frank A. Slowick
Hyannis	September 22	Paul L. Norton
Fall River	September 26	David S. Grice

Physicians referring new patients to clinics should get in touch with the district health officer to make appointments. Patients are seen by appointment only.

MISCELLANY

UNITED COMMUNITY SERVICES

Dr. Philip D. Bonnet, Massachusetts Memorial Hospitals, will head the Hospital Group of the Service Division in the Red Feather campaign of 1949. Dr. Bonnet has been affiliated with the Red Cross and other social agencies in Philadelphia, where, until 1948, he was hospital administrator of Lankenau Hospital.

CORRESPONDENCE

UNWARRANTED PUBLICITY

To the Editor: Unfortunately considerable publicity, even in professional circles, has been given to a recent newspaper release concerning tonsillectomies performed on five youngsters in one family at the Malden Hospital on the same morning by Dr. Joseph Gitter of Malden.

It is indeed unfortunate that a newspaper "human interest" story should be so exploited. The children were service patients, all on Aid to Dependent Children; the occasion, a T and A clinic. Dr. Gitter, acting in the charitable capacity of senior surgeon on service, was unaware that some of the patients on whom he was operating in the course of the morning were related.

Officially, the hospital only gave permission for a photograph at the door upon discharge; the balance of the information, including the surgeon's name, was secured by the usual enthusiastic newspaper men from the usual "un-named sources."

WILLIAM S. BRINES, *Director*

The Malden Hospital
Malden, Massachusetts

NOTICES

ANNOUNCEMENTS

Dr. Samuel Bachrach announces the removal of his office to the Medical Arts Building, 36 Pleasant Street, Worcester, Massachusetts.

Dr. William M. Downing announces the removal of his office from 1180 Beacon Street, Brookline, where he was associated with Dr. Clifford C. Franseen. He has associated himself with Drs. H. Irving Bixby and Milton E. Johnson, First National Bank Building, Attleboro, for the practice of general surgery.

Dr. William J. Halpin announces the removal of his office from 5 Luther Road, Medford, to 307 Winthrop Street, Medford.

Dr. Douglas A. Thom announces the removal of his office to 459 Marlboro Street, Boston.

MASSACHUSETTS DEPARTMENT OF MENTAL HEALTH POSTGRADUATE SEMINAR IN NEUROLOGY AND PSYCHIATRY

The Fifteenth Seminar in Neurology and Psychiatry will begin October 3, 1949, and will continue until May 19, 1950. It will consist of three separate courses running concurrently as follows:

Review Course in Basic Neurology and Psychiatry: 66 lectures; every Friday, 2:00 p.m. to 8:30 p.m. from October 7 to December 9, 1949, and from March 3, to May 19, 1950, at the Metropolitan State Hospital, 475 Trapelo Road, Waltham, Massachusetts.

Course in Social and Special Psychiatry: 36 lectures; every Wednesday, 5:30 to 10:00 p.m. from October 19 to December 14, 1949, and from March 15 to May 10, 1950, at the Boston Psychopathic Hospital, 74 Fenwood Road, Boston, Massachusetts.

Course in Pediatric Neuropsychiatry (Child Psychiatry): 20 lectures; every Monday, 6:00 to 9:30 p.m. from October 3 to December 5, 1949, at the Walter E. Fernald State School, Waverley, Massachusetts.

All interested graduate physicians should apply before October 1, 1949, by writing to Dr. William C. Gaebler, Superintendent, Metropolitan State Hospital, Waltham, Massachusetts.

The applicants should indicate which of the three courses of the seminar they wish to attend. The registration is requested as a matter of courtesy to the institutions where courses are conducted; also as a convenience for the registrants who will thus receive the schedules and be notified if changes should become necessary during the year.

(*Notices concluded on page xiii*)